THE UNIVERSITY
of EDINBURGH

Exploring the relationship between capital, inequality, and antisocial behaviour in Mexican schools

Luis Fernando Pantoja Núñez

Doctor of Philosophy

The University of Edinburgh

2019

Abstract

Various studies have linked poverty and inequality with problems in schools, including antisocial behaviour (ASB). However, many of these studies have two important limitations that have shaped our view about these problems. The first problem is that the vast majority of these studies have been carried out in a few western countries that share similar characteristics, so very little is known about how these issues affect other places. The second problem is mainly associated with the lack of integration of different theoretical and methodological elements, which have led to partial or inconclusive conclusions.

Based on the forms of capital developed by Bourdieu (1986) and using an ecological approach that incorporates characteristics of students and their schools, this thesis explores the relationship between economic, social and cultural capital, their associated inequality, and the perceived frequency of ASB of students and principals of secondary schools in Mexico.

The research is based on secondary analysis of the National Plan for the Evaluation of Learning (INEE 2016). Confirmatory Factor Analysis was used to construct measures of perceived frequency of ASB and economic, social, and cultural capital. Measures of inequality for each form of capital were based on Generalised Entropy, which allowed the examination of the effects of disparities at different parts of the distribution. The analysis was conducted using Structural Equation Modelling. Additionally, the students' perceived frequency of ASB was explored using Multilevel Modelling, while the analysis of the principals was based on OLS. Lastly, Multiple Group Analysis was used to explore the effects of capital and inequality in different types of schools, and localities of different sizes.

Social capital was the only form of capital with a consistent effect, as it was associated with a decrease in the perceived frequency of ASB of both students and principals from all school types and localities. Economic and cultural capital had an effect on the perceived frequency of ASB but only in some types of schools and in some localities. Inequalities in students' social and cultural capital were linked to the perceived frequency of ASB in some types of schools and localities, such that higher levels of very deprived or wealthy students were associated with lower perceptions of ASB.

As one solution to reducing the perception of ASB in Mexican schools, this thesis suggests fostering better social connections, addressing some vulnerabilities associated with the lack of economic and cultural capital, and understanding the unique characteristics of different environments in how they shape patterns of ASB.

Lay Summary

Many scholars and policy makers have associated poverty and inequality with antisocial behaviour in schools; however, this apparent relationship is still unclear. Therefore, this thesis provides an analysis of the relationship between economic, social and cultural capital, their inequality, and the perceived frequency of antisocial behaviour in Mexican schools, using a more inclusive approach that aims to overcome some of the challenges faced by previous studies. In this sense, previous studies about the effects of poverty and inequality have made generalisations about their impact on issues such as crime and ASB without contemplating the characteristics of different places, and thus, it is not clear whether these effects apply everywhere or not. Another problem is that the terms poverty and inequality have been linked traditionally only to economic resources, although it is well known that the needs of individuals depend on many other factors that cannot be converted into money or measured using any other economic element (i.e. access to services, education, social connections). Additionally, the measurement of poverty implies focusing only on those who fall into this category, which makes it extremely hard to know how these issues affect groups that are not considered poor. Furthermore, poverty and inequality are rarely analysed together in studies about crime and ASB, producing partial or inconclusive results.

The results of this thesis showed that economic capital (i.e. services, infrastructure, and equipment of each student and school) and cultural capital (i.e. education, cultural goods, and expectations about schooling) explained differences in the perceived frequency of ASB, but only among some types of schools and in some localities. Similarly, it was found that inequalities within schools (between the students) and between schools in social and cultural capital affected the way in which students and principals perceived ASB, but again only for some types of schools and localities. This research showed that improving social capital, which refers to the benefits of social networks and a good coexistence, could have the biggest impact on reducing the frequency with which ASB is perceived in schools. Hence, this thesis suggest more public interventions aimed at fostering a positive school environment not only between students, but also with their teachers. It also proposes that policies in the school context should address some of the problems linked to low levels of economic and cultural capital and recognising the particular characteristics of each place.

Declaration

I declare that this thesis is of my own composition, based on my own work, with acknowledgement of other sources, and has not been submitted for any other degree or professional qualification.

Luis Fernando Pantoja Núñez

Signed_ _____ on ___31/01/2020_____

Word count excluding footnotes, tables, and figures: 94,067.

Acknowledgements

The completion of one of the most exciting and challenging journeys in my life could not have been possible without the support of many amazing people who believed in me and helped me in so many different ways. Because, as I have learned during my PhD, I have to keep things simple and as there is always a word limit, I will mention only a few of those who helped me to complete the journey. However, so many others also contributed in different ways, so I would like to offer them an apology for not including them here. I would like to thank the following people (the order does not determine the importance):

First, to my family, especially to my mum, Javier, Jorge, and Alan, you are my most important pillar and greatest motivation in life. Thank you for always supporting me and believe in my crazy adventures. I love you.

In relation to my PhD, my greatest gratitude is for my supervisors, Professor Susan McVie and Dr Paul Norris. Since I had that first interview for this position, they have always been amazing, always providing great feedback and helping me to become a better researcher. Thanks a lot. I would also like to thank the Criminology Department and other staff members from the Edinburgh Law School. Last but not least, the amazing people in the basement office of Old College (and those who joined us for lunch); although we did not share the best facilities, we made the best social space. This dark and messy place will always have a place in my heart.

Then I would like to thank my friends. Here I have two very special categories. First, those from the *'inner circle'* in LUMID, who helped me and encouraged me to apply for a PhD position, and although we were for a short time together, I doubt I will ever find people like you. Then to my *'forever friends'*, those who have always been there for me (you know who you are), and who despite the distance, we are still as close as always.

I would like to acknowledge and thank the National Council of Science and Technology (CONACyT), as it would not have been possible to complete this journey without their financial support. Finally, thanks to all those Mexicans who believe in our country, who work hard to make a difference, and who never stop fighting to make our amazing country a better place.

Table of Contents

List of Tables

List of Figures

List of Equations

List of Abbreviations

AGEB	Basic Geographical Area
ANOVA	Analysis of Variance
ASB	Antisocial Behaviour
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
GDP	Gross Domestic Product
GE	Generalised Entropy
GFI	Goodness of Fit
ICC	Intra-class Correlation
INEE	National Institute for the Evaluation of the Education
INEGI	National Institute of Statistics and Geography
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary Least Squared
PISA	Programme for International Student Assessment
PLANEA	National Plan for the Evaluation of Learning
RMSEA	Root Mean Square Error of Approximation
RMSR	Root Mean Square Residual
SEP	Secretariat of Education
SEM	Structural Equation Modelling
UNODC	United Nations Office on Drugs and Crime
VPC	Variance Partitioning Coefficient
WLS	Weighted Least Squared

Chapter 1: Introduction

"Mexico is the country of inequality. No where does there exist such a fearful difference in the distribution of fortune, civilization, cultivation of the soil, and population... This immense inequality of fortunes not only exists among Europeans, it is even discoverable among the indigenous population… this state of insulation opposes obstacles to civilization." (Alexander von Humboldt 1811)

Although Humboldt wrote these phrases in his narratives about Mexico more than 200 years ago, it seems like things have not changed much, and the problem of inequality is still one of the biggest obstacles to social progress for this Latin American nation. Mexico is very rich and diverse, but it is also an extremely divided country, in which those from different backgrounds very rarely interact with each other. Social class usually defines someone's life, and thus, opportunities are largely dependent on personal background. Public policies seldom foster social integration, and institutions, such as schools, serve to replicate what is present in each common segment, distancing and isolating social classes even more (Saravi 2015). In many cases, educational qualifications are no longer attractive for young people from the most vulnerable backgrounds, and other activities, including crime, have become more appealing to make a living and gaining social recognition (Jimenez 2005; Furlan 2012; Conde 2014). In turn, the increasing levels of insecurity, which is one of the biggest concerns for Mexicans (INEGI 2016b), have shaped the life of young people who are constantly exposed to insecurity and antisocial behaviours (ASB), and many of them are now growing up in a culture of law-breaking and violence (Corona, Urdal, and Chaitanya 2013; Del Tronco and Madrigal 2013).

It is important to note that the division that exist between social classes in Mexico is not only linked to economic differences between people, but also to other factors that are usually overlooked by researchers and policy makers, including their social connections and cultural background. Hence, although there is an extensive literature that links some aspects of capital and inequality to ASB in Mexican schools, most studies have focus on analysing only those that fall into economic poverty (Del Tronco Panganelli and Madrigal Ramirez

2013; Gomez Nashiki 2005: Prieto Garcia 2005), and therefore, little attention has been paid to those that do not fall into that category. Similarly, the vast majority of the quantitative analyses have only explored either the effect of individual characteristics (Cisneros 2007; Salazar Estrada et al. 2011) or environment elements (Corona, Urdal, and Chaitanya 2013; Vicente and Leyva Moreno 2018), which means that very little is known about how both factors shape the behaviour of people. While other studies outside Mexico have addressed a few of these issues, most of them have been carried out in countries of the so called *'Global north',* whose reality differs from that seen in Latin America; and therefore, their findings do not seem to apply to the Mexican context. This means that in order to understand and tackle the increasing levels of crime and ASB in Mexico (and in Mexican schools), it is necessary to incorporate some of these important elements in a single study of the effects of economic and non-economic resources in young people of different backgrounds.

Therefore, based on the division of capital introduced by Bourdieu (1986) and assuming that both individual characteristics and environmental elements shape the behaviour of young people (Bronfenbrenner 1979), the main purpose of this thesis is to explore the relationship between economic, social, and cultural capital, their associated inequality, and the perceived frequency of ASB in the school context. This research focuses on Mexican schools due to the importance that this institutions have in the development of children and adolescents (Parcel, Dufur, and Cornell Zito 2010). Schools not only provide many beliefs, criteria and principles that help young people to integrate into society (Almaguer, Lozano, and Peña 2014), but also it is there where many of them learn how to deal with order, power, and authority, and are exposed for the first time to problems such as fights, alcohol, drugs, and acts of crime (Fernandez 1994). Additionally, it is important to note that this study focuses on the perceived frequency of ASB as the data used to operationalise this research only contained questions associated to the frequency with which some behaviours and activities were perceived in the school context. Although the results cannot be used to establish a direct link between ASB or crime and the different levels of capital and inequality, some studies suggest a link between perceived antisocial behaviour and disorder and actual levels of these problems (Budd and Sims 2001; Flatley 2017; Laufer and Harel 2003; Upson 2006; Wood 2004).

As mentioned before, this research is based on secondary analysis of data from the National Plan for the Evaluation of Learning or PLANEA (INEE 2016), a nationwide survey that had the purpose of assessing the educational system in Mexico. The decision of using this instrument was based on the fact that it contained the necessary elements for the construction of measures of the main theoretical concepts of this research, including the perceived frequency of ASB of students and principals of secondary schools, as well as their economic, social, and cultural capital. Structural Equation Modelling (SEM) was used as the main statistical method because it allowed the calculation of the measures of perceived frequency of ASB and the three forms of capital, as well as the analysis of the relationship between them (Muthén 2002). The measures of inequality in each of the forms of capital were based on Maasoumi's (1986, 1999) two-step approach, in which the measures of capital were constructed first using Confirmatory Factor Analysis (in line with SEM), and then their dispersion was calculated using Generalised Entropy (GE). GE allowed the analysis of the effects of inequalities at different parts of the distribution, that is, due to an overall increase in disparities, or the presence of very deprived or wealthy students. Based on the idea that both individual and school-level elements affect the behaviour of students (and thus in line with Bronfenbrenner's (1979) ecological systems theory), the analysis of the students' perceived frequency of ASB was based on Multilevel Modelling. Yet, linear regressions were used for their analysis of the principals' perceived frequency of ASB because all the data linked to them was at the school-level. Lastly, due to the fact that previous studies suggest important differences between public and private schools (Saravi 2015) and rural and urban areas (Hernandez Esquivel 2015), this thesis also provides an analysis of the effects of capital and inequality across different types of schools and localities of different sizes.

The findings of this thesis suggest that both economic and non-economic characteristics of students and schools are associated with differences in the perceived frequency of ASB. Social capital was the only form of capital that had a consistent effect throughout the analysis, as it was associated with a decrease in the perceived frequency of ASB of both students and principals after controlling for economic and cultural capital, and for type of school and size of locality. Although some elements linked to the other two forms of capital were also linked to the perceived frequency of ASB, these effects were significant only among students and principals of some types of schools and localities. In relation to inequality

within schools, that is, between students of the same school, the results of this study show that similar to economic and cultural capital, their effect is significant only for some school types and localities. One of the most surprising findings was associated with the effects of the measures of inequality in the students' cultural capital, where the presence of very wealthy or very deprived students was linked to a decrease in the perceived frequency of ASB of students of some types of schools and localities. Although more studies are needed in order to understand this effect, it showed that differences between students could not always have a negative effect.

Lastly, this thesis showed that besides the effect of social capital it is not possible to establish any general conclusion that applies to all contexts. Therefore, researchers and especially policy makers must take into account the characteristics of each setting in order to understand problems such as those explored in this research and to design better interventions and policies. This chapter provides an overview of this thesis, presenting some information about the background, theory, methods, and findings of the study. The first section will focus on to the problems of poverty, inequality, and ASB in Mexico and in Mexican schools, to then present in the next section some theoretical aspects about the link between capital, inequality and ASB, followed by a brief description of the aims, research questions, research design, data, and methods. The last sections of this chapter summarise some of the key findings of this research, show the overview of its argument and original contributions, and concludes with a brief description of the structure of this thesis.

1.1 Poverty, inequality, and ASB in Mexico

Mexico is a very rich country. Its large number of natural resources and its strategic geographical location have contributed to steady economic growth, boosting the development of some regions and improving social conditions for many of its inhabitants. Nonetheless, it is a very unequal country and only a small segment of the population has benefited from this economic expansion, leaving the rest in precarious and vulnerable conditions. This division has caused not only important disparities in terms of access to economic resources (OECD 2015a) but also a social separation, in which people have limited interaction with others that do not belong to their own social class and public institutions seldom prompt social integration (Saravi 2015). The lack of opportunities for young people

in poor and deprived areas has led many to believe that education is no longer a way to achieve a better future, so other *'alternatives'* have arisen as a result of this situation, including crime (Furlan 2012; Zepeda Gil 2018). Crime is a big issue in Mexico, and not only because crime rates are very high in most regions of the country, but also due to the fact that it has affected and shaped lifestyle of most Mexicans. The presence of fear among the population is a characteristic of the everyday life, where news reports often feature bloody massacres and confrontations between the army and drug cartels, children no longer play in the streets, and in the most extreme cases, some criminal organisations have taken control of entire communities. The social and economic impact of crime is enormous (INEGI 2016b), and unfortunately, the government has not been able to contain the problem due to issues such as poverty and deprivation, the lack of specialised agencies and data, corruption, and social recognition of some criminal groups (Almaguer, Lozano, and Peña 2014; Zepeda Gil 2018). This section presents summary of the problems of poverty and inequality in Mexico and in Mexican schools, followed by some research and figures that link these issues to crime and ASB.

1.1.1 Poverty and inequality in Mexico

Nearly all Latin American nations have in two problems in common: crime and inequality. Although most governments have addressed these problems separately, there is enough evidence that suggest a relationship between them. Conditions linked to those in the most disadvantaged situations such as immigration, irregular settlements, difficulty of family coexistence, unemployment and neighbourhood conflicts, are connected to the emergence of crime in the region (Salazar Estrada et al. 2011). According to the OECD (2015a), Mexico is the second most unequal country among its members, where the 10 percent richest people were about 30.5 times richer than the bottom 10 percent (OECD 2017a). The economic and legal framework in Mexico has helped some people to accumulate enormous fortunes. It is estimated that the top 1 percent richest people concentrate about 39 percent of the nation's total income (CONEVAL 2017); yet, some reports point out that this figure could amount to more than 60 percent (Hernandez Esquivel 2015). Even more shocking is the fact that in 2014, the wealth of only four people represented about 9 percent of national GDP (Hernandez Esquivel 2015). In contrast, the minimum wage remains one of the lowest in the

region, set at $88.36 MXN (£3.48)[1] per day for 2018 (SAT 2017). Even though it has increased consistently throughout the years in nominal terms, the high levels of inflation in the country have reduced drastically its purchasing power in the last decades. According to the government's criteria[2], around half of the population in Mexico live in poverty and another 30 percent are at risk of poverty. Unfortunately, due to this extreme economic disparity between classes, opportunities are scarce for those at the bottom of the social ladder even in the largest and wealthiest cities. Anyone who visits Mexico will find a panorama like the one described by Humboldt more than two centuries ago, where in most cities a few affluent neighbourhoods contrast with numerous slums with high levels of poverty and deprivation that surround them.

The division that exists between social classes in Mexico has caused not only discontent amongst the majority of the population, but hindered opportunities for most of them. Therefore, many Mexicans rely on non-traditional activities to make a living, some of which have had a detrimental effect not only for them, but also for the development of the country. It is estimated that 57.9% of the labour force work in the '*informal sector*', representing around 23% of GDP (INEGI 2015). Most informal jobs are associated with poor working conditions and low wages, generating low tax revenues, and thus, reducing public investment and hindering social mobility in some of the most deprived areas (OECD 2015a). Social conditions in the country are also associated with the rise of criminality, where law-breaking sometimes has been validated by the '*unjust and exclusionary social order*' (Del Tronco and Madrigal 2013). Legitimate opportunities for working-class people are scarce, making illegal activities a lucrative alternative to obtaining economic and social benefits. Although the most serious crimes are attributed to disputes between the government and drug cartels, criminal organisations have become more powerful in places with low levels of education and high unemployment rates, where they are attractive to young people (Corona, Urdal, and Chaitanya 2013). In such circumstances, education is not anymore a feasible solution to improving the living conditions of many young people, and conditions in some of the poorest schools have been linked to crime and ASB.

[1] Exchange rate 28-03-19: 1 GBP = 25.37 MXN

[2] The Mexican Government takes into consideration the following six indicators to define and measure poverty in the country: income per capita, education backwardness, access to health, access to social security, housing quality, and access to basic public services (CONEVAL 2017).

1.1.2 The panorama in Mexican schools

Social and ethnic divisions have caused an enormous disparity between different types of schools in relation to their resources, strategies, infrastructure, and pupil's performance and achievement (Saravi 2015). Some schools face very critical challenges in terms of the availability of economic and human resources, affecting the educational experience of many students, especially those from the poorest and most deprived backgrounds. The dropout rate in Mexico is one of the highest in Latin America, and it is higher among the poorest sectors of the population, where young people are pushed to abandon schools due to factors such as low family income, quality of education, and cost associated with education (Blasco 2003). Nonetheless, schools not only face the challenge of harsh structural conditions and poor educational outcomes, and they have to deal with many other social issues. Schools are places of social interaction where students develop social networks and learn to interact with other people outside their family (Fernandez 1994). However, according to Saravi (2015), instead of fostering social inclusion and providing elements to overcome to individual disadvantage, Mexican schools often serve as a mechanism of social segmentation as in most cases the social and economic background of their students defines these institutions. Thus, due to the limited interaction between students of different backgrounds, schools no longer build a common space where young people interact and acquire skills to improve their quality of life, but they only serve to reproduce the social and economic features of those that integrate them, isolating and distancing classes.

The lack of interaction between students that belong to different social classes has hindered the sense of community and solidarity in some areas, impeding the construction of strong social networks, and even dampening empathy for people that do not belong to the same group. Working class students of urban areas seem to be particularly affected by this situation, as their school experience if often disrupted due to other individual and environmental problems (Blasco 2003). The absence of solid social networks and the poor school experience have caused that for many young people education is no longer seen as an alternative to overcome poverty and improve their quality of life. Thus, traditional goals linked to education have been replaced by the apathy and boredom associated with the meaningless sense of schools and distant long term benefits of education (Saravi 2015). It is in this sense that some scholars suggest that illegal opportunities to gain money and obtain social status have become more appealing than education among some young people of the

most deprived areas (Furlan 2012). Additionally, the increasing levels of crime seen in some areas of the country have further damaged the school experience and the ability of positive role models to influence students (Conde 2014).

However, it is important to note that because most researchers have focused on the analysis of ASB among economically disadvantaged students of urban areas, not much is known about the effects that poverty and inequalities have in other contexts. Moreover, the lack of statistics and institutions dealing with juvenile delinquency makes it hard to establish a real figure of the extent of the problem. Cisneros (2007) noted that these situations have pushed many Mexicans to believe in the existence of a hypothetical public enemy, who is often associated with poor and deprived areas, and thus, generating false labels and stigmas against people that belong to these social groups. Although juvenile delinquency and ASB in schools are major concerns for Mexicans and a priority for the national government, most programmes and strategies have focused only on containing organised crime and serious offending, and very little has been done in other areas that could help to prevent crime in the first place. It is in this sense that this research does not only aim to untangle the complex link between capital, inequality and ASB in the school context in order to implement better policies, but also has the purpose of analysing how these problems affect different social groups, as these issues are not exclusive of only one particular social class. Hence, some theoretical and methodological aspects must be addressed in order to construct a framework to explore this relationship without overlooking some elements or making assumptions about particular groups.

1.2 The relationship between capital, inequality, and ASB

There is an extensive literature that links economic deprivation or poverty with ASB, not only in the school context but also in other settings (see Sampson, Morenoff, and Gannon-Rowley 2002). Yet, as will be discussed in this thesis, some of the findings of previous studies seem to be partial mainly because they have made assumptions about individuals and social environments based on proxies or measures that do not capture the multidimensional nature of these problems. Similarly, most studies that have linked inequality to ASB in schools are based on measures that either rely on economic variables such as income, or they have used the term *'inequality'* as a proxy for economic poverty, and thus, they have

focused only on the analysis of those that fall in this category. What is more, Pridemore (2011) argued that most of studies that link poverty or deprivation to crime do not control for inequality, and conversely, studies about the relationship between inequality and crime have not effectively controlled for variables that denote poverty. Hence, the variation in outcomes might result from model misspecifications, where neither the right variable nor the correct relationships have been established (Pridemore 2011).

This thesis will try to overcome some of the main challenges that previous studies about ASB in the school context have faced. It will be argued that in order to establish a quantitative model that correctly addresses the relationship between poverty or deprivation, inequality, and the perceived frequency of ASB in schools, it is necessary to incorporate several theoretical elements into this research. The first element is the use of the forms of capital developed by Bourdieu (1986) as a framework to address the multidimensional nature of these problems, incorporating economic and non-economic elements in the measurement of capital and inequality. The decision to use Bourdieu's framework was based on the fact that there is enough evidence from previous research that suggest that some elements linked to social and cultural capital are good predictors of ASB in the school context. The second theoretical element will be the use of an ecological approach based on some elements of Bronfenbrenner's (1979) ecological systems theory, exploring individual characteristics and environmental elements together assuming that the behaviour of students is influenced by both factors. Lastly, and as mentioned before, this thesis will explore the joint effect of capital and inequality based on the analysis of Pridemore (2011) in order to explore the effects of inequalities in the perceived frequency of ASB over and above deprivation.

1.3 Aim and research questions

Based on the existing literature about the effects of the three forms of capital and inequality on ASB in the school context, the main aim of this thesis is to explore the *relationship* between *economic, socia*l and *cultural capital,* their associated *inequality,* and the levels of perceived frequency of *antisocial behaviour* and disorder in schools in Mexico. Thus, in order to address this aim, this research will answer the following research questions:

1. How are economic, social, and cultural capital and their associated inequalities related to the perceived frequency of antisocial behaviour in schools in Mexico?
2. Do individual and structural inequalities impact on the perceived frequency of antisocial behaviour over and above deprivation?
3. To what extent are inequalities *within* and *between* schools linked to the perceived frequency of antisocial behaviour in the school environment?
4. How are inequalities at different parts of the distribution associated with the perceived frequency of antisocial behaviour in schools?

Although these questions represent the core of this research, other important issues of the school context in Mexico will be addressed throughout this thesis. These include, among others, the identification of some of the main antisocial behaviours in Mexican schools, the analysis of economic, social, and cultural capital of students and schools, and the exploration of the main inequalities in all the forms of capital that exist between and within schools. While some of these elements are beyond the main scope of this thesis, they can be used in the interpretation of its results and the design of other policies and interventions to tackle the problems of ASB and inequalities in schools.

1.4 Research design, data, and methods

The analysis of the relationship between the three forms of capital, their associated inequality, and the perceived frequency of ASB in Mexican schools will be based on secondary analysis of data from the National Plan for the Evaluation of Learning or PLANEA (INEE 2016). The decision of using secondary analysis was based on the fact that PLANEA contained all the elements necessary for the operationalisation of this research and because this dataset covers a large sample and reaches important subpopulations that otherwise would be inaccessible due to technical and economic reasons (Burton 2000; Donnellan and Lucas 2013; Vartanian 2010). Moreover, due to the aim of this thesis, a quantitative analysis of PLANEA was the best approach because a qualitative study would not allow the examination of the distribution of capital and inequalities within and between schools. PLANEA was administered to grade 9 students (age 14-15) and secondary school principals from all the states of the country, and although its main purpose was the assessment of the

education system in Mexico (INEE 2016), it was the best survey available in Mexico as it contained variables associated with all the main concepts of this research.

In this sense, PLANEA contained different variables linked to the perception that students and principals had about the frequency of ASB in their school environment, which was used for the creation of dependent variables. As mentioned in the introduction of this chapter, although this survey does not contain variables linked to the actual levels of ASB (i.e. self-reported behaviours), there is some evidence that suggest a link between perceived ASB and disorder and real levels of these problems (Budd and Sims 2001; Flatley 2017; Laufer and Harel 2003; Upson 2006; Wood 2004). Thus, the results can be used to assess the relationship between the forms of capital, their associated inequality, and the levels of ASB and disorder in the school context. In addition, PLANEA covered areas associated with all the forms of capital, including the availability household assets and the infrastructure of schools (economic capital), the perception about school coexistence (social capital), and parental involvement, cultural goods, and expectations about education (cultural capital); therefore, allowing the construction of all the independent variables of this research.

Structural Equation Modelling (SEM) was employed as the main statistical technique in this thesis, making possible the incorporation of two approaches in one analysis: the calculation of latent constructs or unobserved variables in terms of observed variables, and the analysis of the relationship between them (Muthén 2002). Because the dependent and independent variables of this study cannot be measured using only one observed variable, Confirmatory Factor Analysis (CFA) will be used to calculate measures for the perceived frequency of ASB and for each form of capital. CFA is appropriate for this study for three reasons: 1) it allows the construction of measures based on theoretical concepts, testing hypothesised models to data driven models; 2) it estimates the implicit value of weights, while preserving the individuality of the observed variables (Aaberge and Brandolini 2014), and 3) it can be incorporated into SEM. The construction of the inequality measures of economic, social, and cultural capital will be based on Maasoumi's (1986, 1999) two-step approach, who suggested first calculating a multidimensional continuous measure of wellbeing (in this study based on the results of CFA), and then measure its dispersion using Generalised Entropy (GE). GE provides more benefits than traditional measures of inequality (i.e. GINI index) as it considers a parameter that allows the estimation of the disparities at different

parts of the distribution. This means that the results of GE measures are important to understand the effect that different disparities within schools have on the perceived frequency of ASB of students and principals, that is, the effect of inequalities due to very deprived or wealthy rich students, or when the differences are similar between all of them.

Due to the hierarchical structure of the data and based on the ecological approach taken in this thesis (as it is assumed that the development and behaviour of children depend on their own characteristics and those of the environment around them (Bronfenbrenner 1979)), the students' perceived frequency of ASB will be examined using Multilevel Modelling. This statistical technique is based on the notion that some variables are not random samples of the population (Kaplan 2009), and hence, some of them explain differences at the individual level, while others at the group level (Gill and Womack 2013). This means that by using Multilevel Modelling in this thesis, it will be possible to assess the extent to which the students' perceived frequency of ASB is explained by their own characteristics (i.e. level of economic, social, and cultural capital) and those connected to their school (i.e. levels of capital and inequality in each school). Because there is only one principal per school, and thus, all variables are at the school-level, the analysis of their perceived frequency of ASB will be carried our using a linear OLS regression.

Additionally, as suggested by Pridemore (2011), the analysis includes measures of both capital and inequality together in order to assess the effects of inequality over and above deprivation (and prevent one of them *'picking up'* the effect of the other one). Lastly, the analysis presented in this thesis includes two elements that can be used to assess the effect of some important environmental factors: the effect and dissimilarities that exist between different types of schools and localities of different sizes. Therefore, the models explore first the effect of each of the forms of capital and their associated inequalities controlling for these two elements, and then their joint effect on each school type and locality is analysed using Multiple Group Analysis.

1.5 Key findings

Overall, the results of this thesis showed that the perceived frequency of ASB of students and principals in Mexican schools is a multidimensional problem that is linked to both economic and non-economic resources, and therefore, they confirmed that the use of Bourdieu's

(1986) division of capital was appropriate for this research. Social capital (i.e. social connections and coexistence in the school context) was one of the best predictors of the perceived frequency of ASB, as some elements linked to it had an important effect even after controlling for all the forms of capital, their associated inequality, and for type of school and size of locality. Similarly, social capital had a consistent effect among students and principals of all types of schools and localities, always reducing how they perceived the frequency of ASB. Although some elements associated with economic and cultural capital also had an important effect on the perceived frequency of ASB, this effect seems to be relevant only among students and principals of some types of schools and localities. Hence, the results of this thesis also provide enough evidence to support the use of an ecological approach based on the ecological systems' theory of Bronfenbrenner (1979), as the frequency with which students and principals perceive ASB depends not only on their individual characteristics but also on those of the world around them.

Another important finding of this thesis resulted from the effects that economic and cultural capital had on some types of schools and localities, as it was in the opposite direction as the one expected and suggested by the literature. In this sense, although poverty and deprivation have been linked to higher levels of ASB and disorder (e.g. Sampson, Morenoff, and Gannon-Rowley 2002), higher average levels of economic and cultural capital among students of the same schools predicted higher levels of perceived frequency of ASB. While in both cases more studies are needed to untangle these effects, this situation seems to be linked to the heterogeneity of some contexts, as higher average levels of economic and cultural capital increased the perceived frequency of ASB only amongst some of the most deprived and unequal schools and localities (e.g. TV schools and small localities). Yet, because these schools and localities had also the some of the lowest perceived frequency of ASB, it can be established that a direct link between poverty or deprivation and the frequency with which ASB is perceived does not exist, and lower levels of economic and cultural capital can increase this problem but only in some contexts. Hence, before establishing any general conclusion about the effects of poverty or deprivation, it is necessary to consider both individual and environmental elements (confirming again Bronfenbrenner's (1979) theory), which can lead to the design of more effective public interventions.

In relation to the effects of inequality in the students' economic capital (which shows economic disparities that exist within schools), the results of this thesis support to some extent the findings of Pridemore (2011), as after controlling for both inequality and capital, inequality in the students' economic capital did not predict the perceived frequency of ASB. However, Pridemore's (2011) findings do not seem to apply to social and cultural capital, as some inequality measures linked to these forms of capital were linked to the students' perceived frequency of ASB, showing that differences between students are an important factor to consider to reduce this problem in schools. This thesis showed the importance of using a methodological approach that goes beyond the traditional measurement of capital and inequality. As pointed out before, the use of a multidimensional framework based on different forms of capital proved to be effective to understand how non-economic factors could affect the perceived frequency of ASB in the school context. Yet, the use of Generalised Entropy was particularly important to detect the effect of inequalities at different parts of the distribution, which had a completely different effect on the perceived frequency of ASB.

The effect that inequality in the students' cultural capital was particularly interesting, as an increase of inequality at the top and bottom of the distribution, that is, in the presence of very wealthy or deprived students in terms of cultural capital (i.e. access to cultural goods and parental support), predicted a decrease in the perceived frequency of ASB. Yet, these effects were significant only among students of TV schools and small localities, indicating once again that environmental factors are important, especially in very diverse contexts. Although more studies are needed in order to untangle this effect, the results suggest that disparities within schools are not always negative, and in some contexts, those students with higher levels of cultural capital could have a positive effect on other students. Although most inequality measures were not linked to the perceived frequency of ASB, it does not mean that inequalities in the school context are not associated with this problem. The fact that the average level of the students' capital and some measures linked to the school capital were associated with the perceived frequency of ASB of both students and principals, suggest that it is important to address the inequalities that exist between schools in order to reduce this problem.

1.6 Overview of the argument

In order to address some of the main challenges of previous studies about the effects of the forms of capital and their inequality on ASB, this research argues that it is necessary to use a more holistic or inclusive approach, where different theoretical and methodological elements that have been used separately in the past are integrated in one study. This approach is of special importance in studies like this, which are carried out outside the so-called "*Global North",* as scholars have established general conclusions about the implications of many problems (including poverty or deprivation and ASB) in spite of the fact that countries like Mexico are very different to those where the leading research has been carried out. Therefore, although this research is limited to the Mexican context, this argument is not restricted to analysis of schools in this country, and the integration of methods and theories, and hence, the results of this study has yielded interesting findings that could apply to other countries.

In theoretical terms, this thesis argues that it is necessary to explore the effects of economic and non-economic forms of capital because all social processes and problems depend of several elements and characteristics, some of which cannot be assessed using economic measures. In this sense, the use of the forms of capital introduced by Bourdieu (1986) provide the best framework for the analysis of capital, as different elements associated with social and cultural capital have been linked in previous studies to ASB in schools. The second theoretical argument of this thesis is the inclusion of individual characteristics and environmental factors to understand the effects of capital and inequality in the school context, and thus, the use of an environmental approach based on some aspects of the ecological systems theory of Bronfenbrenner (1979). In this sense, it can be noted that not only using elements linked to both students and their schools is essential to understand how capital and inequality are associated with the perceived frequency of ASB in schools, but also the analysis of other *meso* and *macro* elements such as type of school and size of locality.

The third theoretical argument is linked to the necessity to analyse the effects of the different forms of capital and their associated inequalities on students and schools of all backgrounds, and not only those who are consider *poor* or *deprived.* Similarly, this thesis argues that it is also important to explore the effects of capital and inequality together, as individuals and schools are affected by both elements, and because the lack of one of these elements would

again yield partial results that could lead to erroneous conclusions. What is more, due to the lack of studies that explore the effects of disparities in social and cultural capital, this thesis argues that it is important to examine inequalities in these forms of capital because differences in the perception of social connections and in '*culture'* could also explain other social processes and problems, including the perceived frequency of ASB. The final theoretical argument of this thesis is linked to the analysis of the effect of inequalities, as it argues that the consequences of disparities between students might depend largely on the '*nature'* of the inequality, that is, whether is originated due to similar differences between students or the presence of very deprived or wealthy students.

In methodological terms, this thesis argues that previous studies of ASB in schools have not been able to assess correctly the link between this issue and the levels of capital and inequality due to the lack of the following elements:

1. A variable that assesses the levels of capital of all students, and not only the poor;
2. The use of individual and school level variables, supporting the idea that both individual and environmental characteristics are connected to the perceived frequency of ASB;
3. Measures of capital beyond economic resources, as the quality of life of people and their needs depend on many factors (some of which cannot be measured in economic terms);
4. Measures of capital and inequality together, to assess the effects of inequality over and above deprivation;
5. The construction of measures of capital and perceived frequency of ASB based on observed variables, avoiding the use of proxies and the arbitrary establishment of weights;
6. The use of inequality measures that focus on different parts of the distribution, that is, inequalities that result due to very deprived or very wealthy students, or when disparities are similar across the distribution.

All these elements provided an important framework for this research, as the results showed that most of these arguments were to some extent confirmed. Furthermore, these elements seem to be relevant not only in the analysis of the perceived frequency of ASB in Mexican schools, thus providing a framework that could be used in other similar studies in the future

and contributing to the discussion about the effects of the different forms of capital and their inequality in schools.

1.7 Original contributions

Following the main arguments of this thesis, it can be established that this research contributes to the study and understanding of the effects of capital and inequality in the school context in three different ways. First, this thesis explores the effects of capital and inequality in schools outside the so-called *Global North,* where the leading research in the area has been carried out, and thus, providing important elements that could help to understand these issues and the importance of contextual factors. It is important to note that the contribution of this research in terms of contexts outside those explored by the leading studies is not restricted to the analysis of the Mexican context, as this thesis also explored the effects of capital and inequality in schools of different background, which has not been done by many studies in the past. The second main contribution of this research is in terms of theory, as it used a framework that incorporated different elements explored in the past separately, including the analysis of the effects of capital and inequality using economic and non-economic forms of capital, the incorporation of individual and school characteristics, and the analysis of capital and inequality together. Lastly, the main contribution of this thesis in terms of methodology is linked to the construction of the measures of capital and inequality, as the use of a multidimensional framework like the one used in this research has seldom been used in previous studies of ASB in schools. Furthermore, this study contributes to studies about the effects of capital and inequality in schools by introducing the analysis of the effects of inequality in social and cultural capital and at different parts of the distribution.

1.8 Thesis structure

This thesis consists of a total of 11 chapters. It begins with a discussion about the contextual and theoretical elements that will be used as a framework for the quantitative analysis, to then explain the research design, data and methods. The following chapters present the construction of the dependent and independent variables, that is, the measures of perceived frequency of ASB and of each of the forms of capital and their associated inequalities,

exploring their relationship in the last two chapters. More specifically, the following chapters of this thesis are structured in the following way:

Chapter two provides a contextual framework for this thesis, where poverty, inequality and crime in Mexico are briefly discussed in the first section, to then explore these problems in the school context. Overall, this chapter shows that there is an acute social division in Mexican society generally, and in Mexican schools, in which different social classes seldom interact, and were people from the most deprived background face very hard social and economic conditions. Although the high crime rates are mainly linked to the rise of organised crime and drug cartels, these organisations have strengthened due to the social discontent of many people in Mexico, where traditional ways to overcome poverty (i.e. education), have been replaced by other illegal activities that provide a short-term solution (e.g. black economies and crime). Based on this background, chapter three discusses some existing research on the relationship between poverty, inequality, and ASB in schools. The chapter begins with an exploration of the existing studies that have explored this relationship in the Mexican context, followed by studies that have been carried out in other countries of the world. The review of the existing literature discussed in this chapter provides the basis for development of the theoretical and methodological framework of this thesis, especially in relation to the lack of analysis that incorporate several aspects of previous studies about ASB in schools.

Chapter four presents some important theoretical and methodological elements that are the basis of the research framework of this thesis. The first section of the chapter provides a clear conceptualisation of the dependent and independents variables that are used in the quantitative analysis, to then discuss three theoretical perspectives that address some of the challenges identified in the literature review. The theoretical perspectives are the use of an ecological approach that incorporates elements at different levels of analysis, the forms of capital of Bourdieu (1986) where capital is divided into three different forms, and a multidimensional approach for the measurement of capital and inequality. Chapter five discusses the research design and data used in the quantitative analysis of this thesis. The chapter introduces first the aims and research questions of this thesis in more detail and the justification for the use of secondary data analysis. More details about PLANEA (INEE 2016) are presented in this chapter, which is the dataset that will be used in the quantitative

analysis of this research, including information about the sample, the operationalisation of theoretical concepts, and the limitations and ethical considerations.

Chapter six discusses the methods and statistical techniques that will be used in the analysis of the relationship between the forms of capital, their associated inequality, and the perceived frequency of ASB in schools. This chapter will expand some elements of Multilevel Structural Equation Modelling, including the use of Confirmatory Factor Analysis and Multilevel Modelling. Chapter six will conclude with more details about the construction of inequality measures, including the use of a parameter that allows the analysis of inequality at different parts of the distribution. In chapters seven and eight CFA is used to construct measures for the perceived frequency of ASB and the forms of capital, respectively. After giving more details of these measures, the chapters describe the latent constructs (i.e. the measures of perceived frequency of ASB and of each form of capital) analysing their differences between various school types and across localities of different size, which provide an important view about how these concepts vary in relation to these contextual factors. Chapter eight also discusses the construction of the inequality measures based on the results of CFA and provides a brief analysis of the relationship between the forms of capital.

Lastly, chapters nine and ten analyse the relationship between the forms of capital, their inequality, and the perceived frequency of ASB of students and principals of secondary schools in Mexico. Chapter nine provides an examination of the effect of each of the forms of capital and their respective inequalities on the dependent variables, to then in chapter ten examine the joint effect of all the independent variables on the perceived frequency of ASB of students and principals. Chapter ten finishes with an analysis of the relationship between these elements for each type of school, and for localities of different size. Chapter eleven draws together all the analyses presented throughout this thesis, addressing the research questions of this research and discussing the implications of the findings. This thesis concludes with some policy recommendations and suggestions for future research.

Chapter 2: The problems of poverty, inequality and crime in Mexico

2.1 Introduction

In one of the most recognised narratives of the Spanish colonies in the Americas, the Prussian geographer Alexander von Humboldt (2015) documented the immense gap that existed between social classes in Mexico. Humboldt described the New Spain (nowadays Mexico) as the most unequal place in the world; where a few refined places, compared in brilliance to those in Europe, contrasted with the "*nakedness, ignorance and vulgarity of the lower people*" (Humboldt 2015:139). Unfortunately, more than 200 years after Humboldt's trip, inequality and social division are still deeply embedded in this country, affecting the life of the majority of the population, especially those from most vulnerable backgrounds. Neglect and deprivation are characteristic of several regions in Mexico, where the lack of opportunities and disinterest of the government have caused a widespread social discontent, which in turn is linked to many other social problems, including crime and antisocial behaviour (ASB). Some scholars have suggested that young people are particularly vulnerable to this situation, which may explain why some of them are now reluctant to adopt traditional ways of overcoming poverty (i.e. education), and see crime as a more profitable alternative (Almaguer, Lozano, and Peña 2014; Corona, Urdal, and Chaitanya 2013; Furlan 2012; Jimenez 2005). Although poverty and inequality seem to be related to antisocial behaviour (ASB) in the school context in Mexico, this association needs to be studied in more detail mainly because the relationship between these problems is not universal, that is, not everyone that faces the effects of poverty or inequality will automatically engage in ASBs. Hence, this chapter will present some information with the aim of contextualising this research and identifying some factors associated with poverty and inequality in Mexico that could explain differences in the perceived frequency of ASB in the school context.

This chapter is divided into two main sections: the first one shows a brief discussion about the problems of poverty and inequality, focusing in section two on crime and ASB. Each section will present first an overview of these issues in Mexico, followed by some existing studies and data about how they affect young people and Mexican schools. The information presented throughout this chapter suggests that different aspects linked to poverty and

inequality could be important predictors of crime and ASB, especially in areas with scarce opportunities and with a large distance between social classes. What is more, some particular elements of deprived neighbourhoods where crime and violence are common could increase the likelihood of offending. Students from these neighbourhoods could be more likely to engage in ASB as they often deal with many issues that disrupt their education. However, due to the division that exist between social classes and discrimination against some specific groups, some of these assumptions could be biased as most of the data that links poverty and inequality with ASB focuses on the analysis of a few specific groups (mainly young working class people). Thus, very little is known about the effects of poverty and inequality among other social groups and it is not clear whether the link between poverty and ASB is the result of the lack of economic resources, the distancing between classes, or other social processes.

As not all the mechanisms that increase the likelihood of offending are evident, it can be stated that before drawing any conclusion about the effects of poverty and inequality on crime and ASB, more studies that analyse this complex relationship are needed. Conde (2011) noted that in order to propose more efficient interventions that can prevent or eradicate the problem, it is important to identify external causes and risk factors, but particularly to understand the processes, practices, routines and strategies in which ASB is produced and reproduced. Therefore, the elements presented in this chapter are of special importance to not only contextualise and interpret the findings of this research (which in turn will help to better understand the relationship between poverty, inequality, and the perceived frequency of ASB), but also to identify feasible strategies that could help to address these problems in the school context.

2.2 Poverty and inequality in Mexico

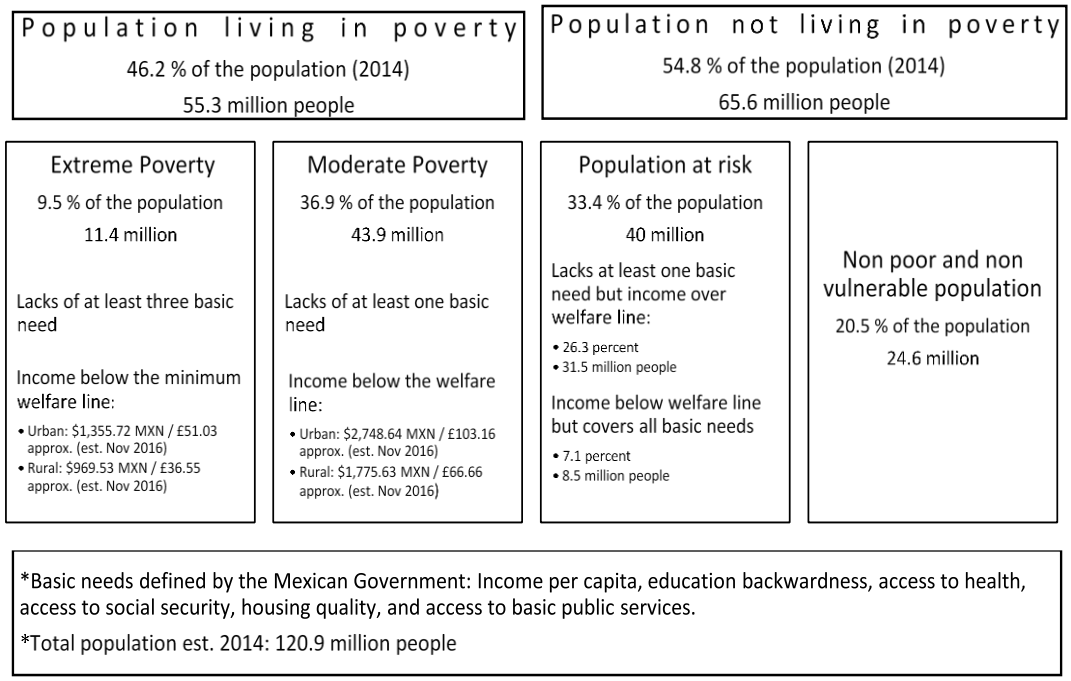
Despite its vast natural resources, large human capital and strategic location, opportunities in Mexico are limited for the vast majority of the population. Most economic and social policies have just benefited those in power, so the future of most Mexicans depends to a large extent on their own social background. The acute social division coupled with the lack of opportunities have caused the discontent of those from the most vulnerable backgrounds, which is now linked to other important problems, including crime and ASB. This situation

seems to particularly affect working class young people, who due to the limitations and problems that they face derived from their vulnerable condition, often see their education disrupted, producing a disconnection with their school environment and a lack of empathy with other students. On the other hand, for some students in the most privileged positions the main benefit of schooling does not seem to be the quality of education provided by some private institutions, but the exclusivity and access to elite social connections that they offer. The following section will present some information that will help to better understand the problems of poverty and inequality in Mexico, followed by some data and studies that show how these issues seem to affect young people from different social background. Although more information is necessary in order to understand the link between poverty, inequality, and ASB in the school context, the evidence provided in this section is enough to suggest that this relationship is not only constricted to the availability and disparities of economic resources. Therefore, it might be necessary to consider other elements in order to untangle the link between these problems, including other social factors and the analysis of students from different backgrounds, and not only the poorest ones.

2.2.1 Poverty and inequality in Mexico

Mexico is the second most populous country in Latin America, just behind Brazil, with more than 128 million inhabitants (United Nations 2017). Despite recent reforms aimed at boosting the country's development through market liberalisation and investment in strategic areas, economic growth has been relatively low compared to other countries in the region. Weak economic performance has been linked mainly to a corrupt public sector that works for the benefit of a few people and is unable to cope with high crime rates, reducing productivity and investment (OECD 2015a). On the contrary, many ineffective public policies coupled with a weak regulatory framework that reduces competition, have helped some people in Mexico to accumulate immense fortunes. One example is the current fiscal system, where most of the revenue comes from taxation to personal goods and services and not income, thus, affecting the poorest people and benefiting only the most affluent sectors (Hernandez Esquivel 2015). According to the OECD (2015), Mexico is the second most unequal country among its members, where the 10 percent wealthiest people were about 30.5 times richer than the bottom 10 percent (OECD 2017a). National statistics also indicate

that the top decile, concentrates about 39 percent of the nation's total income (CONEVAL 2017; Moreno-Brid and Krozer 2014); yet, other reports pointed out that this figure could go as high as 60 percent (Hernandez Esquivel 2015). Even more shocking is the fact that in 2014, the top 1 percent accounted for 21 percent of the nation's income, and the wealth of only four people represented about 9 percent of the GDP (Hernandez Esquivel 2015).

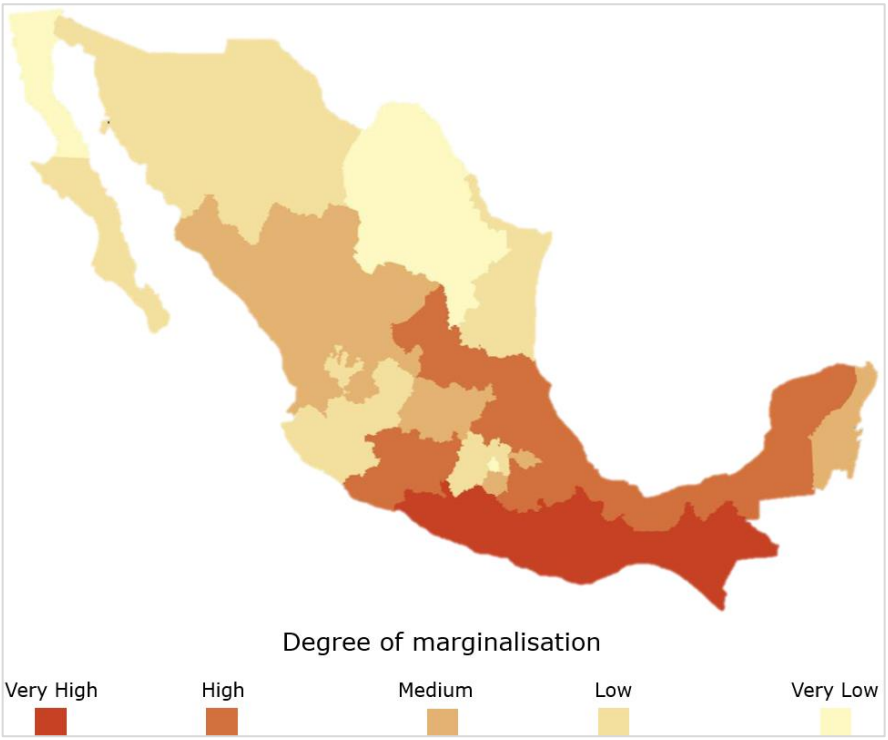


Source: CONEVAL 2017
Figure 2.1: Population living in poverty in Mexico

Figure 2.1 summarises the situation of poverty in Mexico according to the official criteria[3]. It can be noted that those who live in poverty (almost half of the population) lack at least one of these basic needs and their income falls below the welfare line. Even more worrying is the fact that in a country with some of the richest people in the world, around 10 percent of Mexicans live in extreme poverty, that is, lacking more than 3 three of the basic needs mentioned before and with an income below the welfare line. Additionally, another 30 percent of Mexicans are vulnerable because they lack at least one basic need or their income

[3] The Mexican Government takes into consideration the following six indicators to define and measure poverty in the country: income per capita, educational 'backwardness', access to health, access to social security, housing quality, and access to basic public services (CONEVAL 2017).

is below the welfare line; leaving only 20 percent in a non-poor and non-vulnerable situation. Minimum wage was set at $88.36 MXN (£3.48) per day for 2018 (SAT 2018), one of the lowest in the region, and even though it increased almost 10 percent in relation to the previous year, the high levels of inflation in the country have drastically reduced its purchasing power throughout recent decades. In 2014, it covered about a fourth of what could be bought in 1976; and if only one person earns the minimum wage in a family of two or more, all its members will live below the extreme poverty line (Hernandez Esquivel 2015).



Source: CONEVAL 2017
Figure 2.2: Degree of marginalisation by state in Mexico

In geographical terms, figure 2.2 shows that there is a visible division between the different regions of the country, where the central and northern states are considerably less marginalised[4] than the southern states. Similarly, official figures (CONEVAL 2017) indicate

[4] The Mexican Government established a regional index of marginalisation based on percentage of the population that fall within the following categories: illiterate adult population, school-age population that does not attend school, households with adult inhabitants with less than 9 years of education, population without access to health

that from the 2,457 municipalities that existed in Mexico in 2015, 30 percent had high or very high levels of marginalisation, and almost all (90 percent) of them were located in the southern region of the country. Furthermore, all but eight of the highly marginalised municipalities had a population of less than 100,000 inhabitants, which contrasts with only 3 percent of municipalities with a population over 100,000 that had high or very high levels of marginalisation.

The difficult living conditions in some of these areas have pushed many people to look for options to improve their life, and migration has been an alternative to many of them, in spite of the fact that not all of those who leave their hometowns always find their longed expectations. It is well known that a large number of Mexicans have emigrated to other countries, especially to the United States, where it is estimated that more than 10 percent of the population or 35 million people are of Mexican origin (Bureau 2015). Nevertheless, internal migration has also increased considerably in the last decades. Prompted by a process of fast industrialisation of some areas (mainly across the border with the United States and around Mexico City), many people moved from rural areas into cities of these regions, shifting the traditional agrarian economy into an industrial and service based one. In 2015, it was estimated that 79 percent of the population lived in urban areas (United Nations 2017); and just a few urban areas concentrated the majority of the population of the country, as well as the economic and financial resources. However, even in the largest and wealthiest cities, the sharp contrasts between the few affluent neighbourhoods and the vast slums is a characteristic that defines all urban areas of the country.

Mexico is a poor performer in most OECD ranks, especially in the fields of education, safety, housing, work-life balance, health, and gender gap (OECD 2017b). In turn, these problems are connected to other issues such as poor working conditions and long working hours, which generate low productivity and increase the number of people that see in the informal sector or black economy an alternative to provide their households. However, informality often results in poor quality jobs and low tax revenues, reducing even more social mobility in the country (OECD 2015a). These elements have caused immense disparities between social classes, and thus, social exclusion has become part of the everyday life in Mexico, from

services, average number of occupants per room, dwellings with earthen floor, and dwellings without toilet, running water, drainage, electric power, refrigerator, and washing machine (CONEVAL 2017).

recruiters who often reject candidates that come from public schools, to nightclubs and shopping malls that restrict the entry of people that show physical characteristics linked to the lower classes (Jimenez 2005).

Jimenez (2005) stated that consumerism has changed ideologies, producing individualism among people, separating classes, and creating the need of fitting in certain markets. Many people in Mexico exalt the lifestyle of those with money and power, no matter how they got into that position, and downgrade poorer social classes classifying them as weak, and in more extreme cases as rebels, questioning their morality. All these economic and social conditions in the country have generated the perfect environment for the development and rise of criminality, where some problems are justified by the *'unjust and exclusionary social order'* (Del Tronco and Madrigal 2013). Young people are thought to be particularly affected by the situation, especially those from the most vulnerable backgrounds, and many people think that as opportunities for working-class young people are scarce and education is no longer seen as a way to overcome poverty, delinquency has become an alternative to obtain economic benefits and social status.

The media plays an important role in reinforcing some of these ideas and stigmas against young working-class people, often linking them with crime and ASB. News reports, series, and the popular '*soap operas'* only show offenders whose physical or social characteristics are linked to those from lower classes, promoting discrimination towards others that belong to that social group. In this sense, Cisneros (2007) argued that the insecurity identified within some groups and specific spaces, along with the structural violence edited by the media, have produced a hypothetical public enemy who is often dangerous, drug addicted and violent. This public enemy is frequently described with features such as being young, living in a deprived area and belonging to a specific social class, so discrimination affects not only offenders but also the rest of the population that share the same characteristics.

Although at this point, it is not possible to verify a direct link between poverty or inequality and ASB, the information presented here suggested that the disparities seen in some areas in Mexico, coupled with the lack of opportunities from those at the bottom of the social ladder could put certain groups at risk. However, it is not clear whether the vulnerability arises from the lack of economic resources or the structural segmentation of the society, where discrimination and stigmatisation have not only push people to look for alternatives

to make a living, but also created a hostile environment for several groups. What is very clear, is the fact that violence has spread to most regions and social spheres in Mexico and nowadays affects almost everyone in the country, regardless of socioeconomic condition (Almaguer, Lozano, and Peña 2014). The next section will provide more information about how poverty and inequality affects young people in Mexico, focusing mainly on their effect in the school context with the purpose of identifying more elements that could help to establish a theoretical and methodological framework for this research.

2.2.2 Poverty and inequality in Mexican schools

Schools play a very important role in the development of children and adolescents, going in most cases beyond their traditional role of only providing education. In schools, many students acquire their expectations about what they will achieve in society, and they also provide many beliefs, criteria and attitudes that help young people to integrate into society (Almaguer, Lozano, and Peña 2014). However, as explored in previous sections, in a highly unequal country like Mexico, not everyone has access to the same opportunities, and some issues associated with poverty and deprivation sometimes disrupt the education and school experience of many young people. For many students, education is no longer an alternative to overcoming to the struggles derived from poverty, so they are looking for new alternatives to make a living, and crime has been suggested as being one of them. On the other hand, as this section will show, among many parents from the most affluent backgrounds, schools are not only seen as places to prepare their children for a better future, as the possibility to benefit from 'good' social connections is often more important than the quality of education.

The Mexican Constitution (DOF 2016a) states that the government should guarantee the quality of education, stimulating love for the country, human rights, international solidarity, independence, and justice. It also states that schools should contribute to human coexistence, strengthening appreciation and respect for diversity, dignity, integrity, fraternity, and equality; avoiding privileges based on race, religion, groups, sex, or individual. According to the Constitution (DOF 2016a), all basic education provided by the state should be secular, free, and mandatory. Pre-school, primary and secondary schools make up basic education, and from 2009, also upper-secondary education or high school is mandatory. Pre-school is provided to all children between the ages of 3 and 5, primary

school consists of six grades and is normally taught to children from 6 to 12 years of age. Secondary school is provided over three years to the population between the ages of 12 and 16 who have completed primary education; and it is compulsory to attend upper-secondary education, which also lasts for three years (SEP-INEGI 2013). The government has made education one of its priorities, promoting several policies in order to improve its access and quality across the country. For example, between 1990 and 2010, the average schooling years increased from 7.9 to 10.2 and basic education coverage became universal (Saravi 2015).

The Secretariat of Education (SEP) has classified Secondary education into the following categories: General, Community (organised by indigenous and rural communities), Technical (providing additional technical skills), Telesecundarias or TV schools (distance learning), schools for migrants, and schools for adult workers (INEE 2016). Public and private institutions offer all these categories; public education is free of charge and private entities are allowed to provide all kinds of education, but they must be in accordance with the same purposes and criteria as the ones established by the state (DOF 2016a). Although in theory the state guarantees the quality of education for everyone, as mentioned before the "*access to a good education is linked to socio-economic status of the family*" (OECD 2015a, 30) and schools are probably one of the places where the social disparities that exist in Mexico are most reflected. Class division has caused an enormous difference between public and private schools in relation to their resources, strategies, infrastructure, and pupil's performance and achievement (Saravi 2015).

In public schools, spending per student is just about one-third of OECD average, where most of it goes to the salary of the teachers and not enough to infrastructure (OECD 2015a). Hence, many public schools face critical challenges, including lack of internet (80 percent), computers (61.2 percent), drainage (48 percent), drinking water (31 percent), toilets (12.8 percent), and electric power (11.2 percent) (Hernandez Esquivel 2015). Mexico also underperforms in all fields of education compared to other members of the OECD (2015b), but disadvantaged students are about two and a half times more likely than those from wealthier backgrounds to achieve low performance. Similarly, students in the most affluent regions of the country show better results than those in the poorest areas, and private schools in all the states perform better than public and rural schools (SEP 2013b). The

dropout rate from mandatory education in Mexico is almost 50 percent, one of the highest in Latin America (OECD 2015a). In this sense, there is a particularly high dropout rate among students of secondary schools of the poorest regions and neighbourhoods, mainly as a result of disapproval of education in the community, low family income, unequal quality of education, gender discrimination, and cost associated to education (Blasco 2003).

Although there is a lack of research about the impact of poverty and inequality on students in Mexico, Saravi (2015) has done some interesting research in the area, analysing schools and students from all backgrounds (and not only those affected by poverty and deprivation). According to Saravi (2015: 157) schools follow a market model "*where preferences of consumers are embedded in social inequalities, and the market responds to these preferences strengthening inequality"*. Therefore, contrary to their main purpose of instilling values and providing knowledge and skills to integrate people into social and work life, schools often serve as a mechanism to reproduce social inequalities, and therefore, reduce social mobility. He pointed out that schools are more than a place for learning, they are a space of socialisation and subjectivisation, where several behaviours, thoughts, and meanings are produced and reproduced.

However, Saravi (2015) noted that some schools no longer build a common subject and space, but reproduce what is present in each social segment, closing and distancing classes. This means that social segmentation results in further distancing and isolation of social classes, limiting the opportunities of shared experiences and contributing to undermine solidarity and a sense of community. Students from prestigious private schools gain recognition just because of the elitist nature of the institution and not for their academic performance. In some schools, the quality of education is not the most important factor for those who choose them, but they are constrained by the social exclusivity they offer, where people who do not belong to the same social and economic context are excluded. Students from the most affluent areas usually have a linear and continuous education trajectory, in which they remain in the same school and environment most of the time, allowing the formation of strong ties with other members of the same elite group. This situation has accentuated due to the waves of insecurity that the country faces, where richer people have minimised their presence in public spaces, restricting themselves to a few areas where encounters with 'others' from different social background is limited.

On the other hand, Saravi (2015) stated that young people from poor backgrounds do not perceive the same benefit from attending school. Students from poor and deprived areas often do not attend school for very pragmatic reasons, such as finding a job and improving their living conditions; and instead, willingness to learn is replaced by apathy and boredom, associated to the meaningless sense of schools and distant long-term benefits of education (where university is usually beyond their expectation). This attitude is reinforced by the high stigma that the rest of the population has against some schools of poor areas, where people often undermine the value and authenticity of their education, discouraging further academic careers and making their students look for alternatives to schooling. Some problems associated with working class students such as residential changes, economic problems, health issues, household readjustments, and family conflicts, often disrupt their education, impeding the construction of strong social ties with other students, and hence, deteriorating their school experience.

This section has showed that despite the legal framework that guarantees the quality of education for all young people in Mexico, the school experience seems to depend to a large extent on the economic background of the students. On the one hand, some of the poorest public schools face several challenges, most of which seem to be derived from the lack of economic resources and investment. Although some of the most deprived students seems to be also affected by the economic problems associated to their own social background, other non-economic factors also seem to disrupt their school experience, and therefore, they should be contemplated in this research. On the other hand, the exclusivity and access to elite social networks seem to be the most important factor when the wealthiest parents choose a school for their children, and due to the limited interactions with other social groups in these institutions, their students seem to be more likely to develop strong social connections with their peers. Therefore, this situation also suggest that it might be necessary to incorporate variables linked to social connections and their associated benefits. Similarly, because ASB has not been commonly explored in this setting, very little is known about how those strong social ties (and also economic capital) impacts the behaviour of their students, and thus, it might be necessary to incorporate in this study schools from all social backgrounds.

2.3 Crime and antisocial behaviour in Mexico

Today two problems are particularly concerning for Mexicans: the high levels poverty and inequality that have fragmented society and push people to look for alternatives to make a living, and the insecurity and increasing crime rates that have changed the lifestyle of most people in the country. In this sense and as explored in the previous section, the high levels of poverty and inequality in Mexico have produced an important segmentation of social classes, where the lack of opportunities and feeling of social discontent are common among some of the most neglected sectors of the population. In turn, these problems are now linked to many other social issues; from which crime seems to be the most concerning. The high crime rates have had an immense impact on the economic growth of the country, particularly among those that cannot cope with the situation (usually the ones in most vulnerable situations), deteriorating their quality of life, and increasing the distance between social classes.

Although the current criminal rates and political instability are to a large extent the result of a long war between the Mexican army and drug organisations; criminal groups have emerged and strengthened due to internal problems such as corruption, social division, and the neglect of some sectors of the population. Additionally, the evidence presented in this chapter suggest that the high levels of violence observed within and outside the school environment, have had very negative effects for some students in the most vulnerable positions. However, the lack of official data and studies in the field make it extremely difficult to identify particular elements and risks factors that could explain the link between poverty, inequality, and ASB. It is important to bear in mind that the information presented is not intended to analyse in detail the increasing criminal rates in Mexico, but to position this study and to identify some elements and gaps in research that could help to untangle the complex relationship that exists between poverty, inequality, and the perceived frequency of ASB in schools. Similar to the analysis of poverty and inequality in Mexico, this section is divided into two subsections. The first one will present information about crime in Mexico, and the second one will discuss some aspects of juvenile delinquency and ASB in schools.

2.3.1 Crime in Mexico

In recent years, the Americas have emerged as one of the most violent regions of the world. The United Nations Office on Drugs and Crime (UNODC) estimates that in 2012, about 157,000 homicides were committed there, representing roughly 36 percent of all homicides in the world (UNODC 2013), despite representing only about 8.6 percent of the world's population. Conditions such as migration, loss of cultural identity, irregular settlements, difficulty of family coexistence, unemployment and neighbourhood conflicts, have prompted the emergence of crime in many cities of Latin America (Salazar Estrada et al. 2011). Although most Latin American countries have relatively high crime rates compared to other regions of the world, Central America has been particularly affected by a wave of violence, having the second highest homicide rate in the world (just after Southern Africa), with 26 murders per 100,000 inhabitants (UNODC 2013). In the case of Mexico, according to the National Institute of Statistics and Geography (INEGI 2018), between 2006 and 2017 there were 252,538 homicides, reaching its peak in 2017, with a homicide rate at 25 per 100,000 habitants.

However, there is a large variation in the homicide rate within Mexico, where crimes have been concentrated in some states across the northern border and the southern pacific. For example, in 2017 the pacific state of Colima had an average rate of 113 homicides per 100,000 inhabitants, compared to only 2 in the south-eastern state of Yucatan (Secretariado Ejecutivo 2018). Crime has been linked in most cases to the high levels of corruption and impunity in the country, which has allowed criminal organisations and drug cartels to increase their presence and power. Mexico went from a place of transit of drugs, to a country of production and consumption; and organised crime is now linked to many other problems such as human trafficking, prostitution, child pornography, and weapons trafficking (Almaguer, Lozano, and Peña 2014). Official statistics also indicate high levels of other crimes, including raping, kidnapping, bank robberies, theft with violence, and housebreakings (Secretariado Ejecutivo 2018).

Crime has taken its toll for most Mexicans, as it has shaped several aspects of their everyday life, limiting the economic and social development of many people. It is estimated that in Mexico the cost of crime amounts to around 1.25 percent of the GDP, in which 62.9 percent represents the economic impact consequence of the different crimes, and 32.9 for preventive

methods including security measures at home (INEGI 2016b). It is important to note that because most public policies have focused on mitigating the consequences of crime instead of tackling some of its causes (Vilalta and Muggah 2016), they have proven ineffective, as crime rates are still increasing. A national victimisation survey estimated the dark figure (unreported crimes) in 2015 at 93.7 percent, this means that only 6.3 percent of crimes were reported by the victims of crimes and investigated by the police; the main reason for not reporting them being the lack of trust in public institutions (INEGI 2016b). This survey also estimated that in 2015, there were 29.3 million crimes in Mexico and 23.3 million victims of crime, which represents a rate of 28,202 victims per one hundred thousand inhabitants.

Although crime rates were already high in Mexico prior to the emergence of organised crime, most cases occurred in smaller and rural communities, difficult to reach by the rule of law and embedded in social violence (Caudillo and Torche 2014). However, the shift from an agrarian economy into the industry and services, prompted urbanisation and social policies to regulate land control and increase access to education, and towards the end of the 1990's and the beginning of this century crime rates decreased considerably. In contrast, the violence seen in Mexico in recent years is mainly attributed to the conflict between the security agencies and the different drug organisations. Mexico is the main route of access for criminal organisations into the United States; and hence, illegal groups have had tried to control the area for a long time. The country was ruled under an undemocratic system for most of the 20th century, where the government allowed a few drug cartels to work without much restriction. Yet, some events at the beginning of the 2000's (i.e. the transition of Mexico into a democracy and the terrorist attacks of 9/11) pushed the government to respond against the powerful drug organisations, fragmenting their structure, and generating internal conflicts to take control of the power (Caudillo and Torche 2014).

Since then, different criminal organisations have arisen aiming to control the main routes of drug trade, causing not only violent clashes with other rival groups, the military, and the police, but also all of those who oppose their activities such as local authorities, journalists, and business owners. Criminal organisations are now in control of many communities and towns across the country, and despite their negative image to most people in the country, many others rely on them to make a living. In some cases, '*cartel*' leaders are even credited with the development of entire communities, especially in the poorest states of the country.

It is estimated that drug organisations employ around 450,000 people and up to 3.2 million depend directly or indirectly on drug trafficking, generating revenues between 25 and 30 billion dollars, (Almaguer, Lozano, and Peña 2014). This economic support has risen their social acceptance in some areas, where public opinion benefits such groups, becoming a source of inspiration for many and the only form of family income for others. Drug and criminal organisations have become especially attractive to young people in areas with low levels of education and high unemployment rates (Corona, Urdal, and Chaitanya 2013), where criminal activity is seen as the only way to overcome to poverty and is justified by the neglect from the government and social rejection by some groups.

It is important to note that not all crime in Mexico is linked to drug cartels and criminal organisations, and there are other economic and social factors that have been linked to this problem (Herrera Lasso 2014). Some studies have suggested that other predictors of crime in Mexico include, social disorganisation, institutional anomie, and family disruption and their associated vulnerabilities (Vilalta and Muggah 2016). Apart from those issues linked to organised crime in Mexico, Zepeda Gil (2018) identified in the existing literature a link between the increasing crime rates in Mexico and the following factors: social disorganisation, the inefficiency and corruption of the Mexican government, and an acute social crises in the country that has pushed many people to look for alternatives for a living. In this sense, Zepeda Gil (2018) suggested that crime and ASB were common especially in situations of unemployment and social disorganisation (including lack of school ties among young people).

The information presented here suggested that the lack of opportunities is one of the most important elements that could predict the increasing levels of crime and ASB in Mexico. Yet, this section also provided other important factors that could put some groups at risk, some of which do not seem to be directly link to the availability of economic resources, from which social disorganisation and the constant exposure to violence seem to be the most important. Despite the main purpose of this section being presenting the context of this research and identifying some elements that could help to understand how poverty and inequality affect ASB, it also showed the need for more effective public interventions, and thus, raising the possibility that this study could be used for the design of future public policies. Although the existing literature has focused mainly on the effects of organised crime in Mexico, some

studies suggest that people are now considering crime as a solution to overcoming the struggles of poverty. In this sense, young people from deprived backgrounds seem to be especially at risk, as they are constantly exposed to many difficulties derived from their vulnerable situation, causing that in some cases, education is no longer an alternative to achieve a better future.

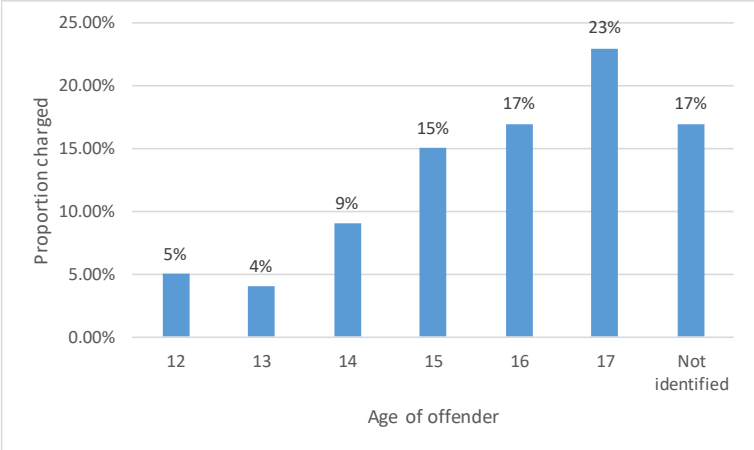
2.3.2 Juvenile delinquency in Mexico

The inequality and extreme poverty seen in Mexico, have made almost impossible the insertion of many young people into the formal job market (Jimenez 2005), where formal jobs with poor working conditions and low wages compete with informal activities that provide much better prospects. Even in some cases, illegal activities are more appealing than a university degree (Furlan 2012), as they provide a rapid solution to overcome poverty and to obtain social recognition. Because the social and economic future of some young people is uncertain, recruitment from criminal organisations is common in some areas, where young people risk their lives working for them to obtain short-term goals. This situation has been reinforced by a perception that criminal organisations are stronger than the government, especially in areas under control of drug cartels, where the military and police have reduced their presence.

What is more, increasing crime in the country has forced the government to adopt strategies in which schools in some deprived areas are a focal point, targeting issues such as drug trafficking, addictions, gangs, and illegal use of weapons. Some of these interventions have affected the wellbeing and development of children, especially in the area of education, health, culture, social development, and democracy (Zurita Rivera 2012). It is likely that the lack of opportunities and social segmentation have contributed to the growth of drug cartels and criminal organisations, however, not all crime in Mexico is linked to organised crime. It is important to note that not all regions of the country have the same levels of crime, and thus, before making any generalisation about the effects of poverty and inequality, it is necessary to analyse different social contexts, especially because it is not clear whether poverty and inequality have the same effects among young people of different backgrounds.

Despite the lack of data and research that could help to assess the real impact of juvenile delinquency in Mexico, some studies and official statistics suggest that certain groups are

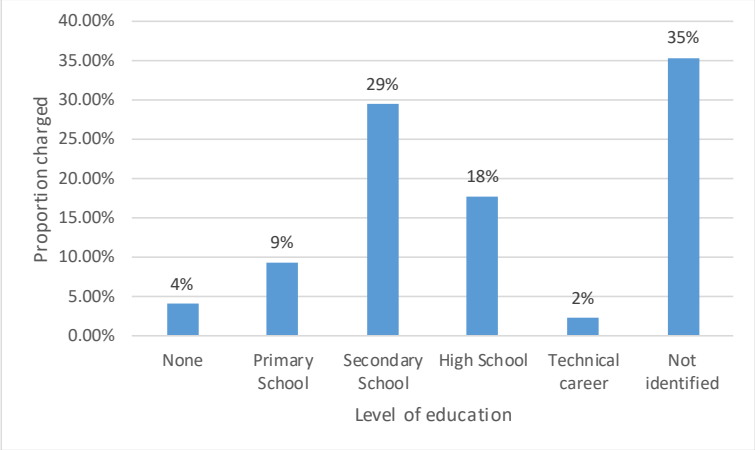
particularly at risk, including those from the poorest and most deprived backgrounds. Figures 2.3 show the age of minors charged of committing a crime in Mexico for the year 2015 (INEGI 2016a), where it can be observed that, apart from those cases that were not identified, around half of them where between 16 and 17 years old. The current law (DOF 2016b) set the age of criminal responsibility at 12 years old, and in theory, it also established a juvenile system specifically designed to serve minors, where minimum and maximum penalties were well defined. However, there is still an immense lack of specialist provision for young offenders, as out of 3,821 justice agencies in Mexico, only 3.8 percent are dedicated to adolescents (CIDAC 2016). Although some improvements have been made in recent years, including the fact that the age of criminal responsibility was unified for all the states in the country (before it varied between the ages of 7 and 14), the lack of specialised units and consistent data has made very difficult the analysis of juvenile delinquency and ASBs among young people.



Source: INEGI 2016a
Figure 2.3: Age of minors charged of committing crimes in Mexico, 2015

According to the National Institute of Statistics (INEGI 2016a), in 2015, there were 31,115 minors charged of committing crimes, being the most common offences theft and robbery, injuries and assault, and drug related crimes. Figure 2.4 shows the level of education of these young offenders, where it can be noted that, from the identified cases, the groups with the highest frequencies were those who had not completed basic education, set since 2009 from

preschool to high school (DOF 2016a). Secondary school was the most common category (leaving aside all the unidentified cases). This raises the importance of analysing students in this type of school, not only because most of the offenders had it as their highest level of education, but also because it corresponds to those between the ages of 12 and 15 or 16, that, as indicated in figure 2.3, is the age group with the greatest increase in offending. Thus, analysing individual and structural factors in these institutions might be helpful to untangle the complex link between poverty, inequality, and the perceived frequency of ASB.



Source: INEGI 2016a
Figure 2.4: Level of education of minors charged of committing crimes in Mexico, 2015

2.3.3 Antisocial behaviour in Mexican schools

Schools cannot be conceived any more as distant places, far away from their immediate settings, but one that is shaped by the main dimensions of the society in which they are established, including the political, social, cultural and economic contexts. As noted in previous sections, the school experience does not depend entirely on the economic resources of these institutions, but on other external factors, including the students' personal background and social connections. Some studies suggest that schools face many problems especially in places where crime rates are common. The hostile environment in schools expose students to violent acts, affecting their personal and social development. Because many working class students feel that the future is uncertain and with few opportunities, Conde (2014) considers that '*criminal cultures*' have a higher capacity of

penetration and impact on schools. She notes that organised crime rarely acts against schools; however, youth gangs linked to those organisations sell drugs, extort members of the school, recruit other members, and fight against each other. All of those who are members of street gangs or sympathise with them carry a culture that diminishes the values and role of the school. Conde also noted that most young children from deprived areas have the ideal of becoming a doctor, nurse, model, boxers or other promising careers; however, as they grow up, they change their perception about the future, sometimes engaging to activities that diminish their future development. She also argued that violence in some environments represents the only way to face reality and deal with problems, and since many children have never seen conventional families and successful professional careers, they follow other models that they consider successful and that represent power.

Violence has become a common practice in Mexico and it is no longer a cause for astonishment but something normal. Conde (2011) defined school violence as all those acts, conditions, processes and forms of relation inside or around schools, in which an individual or a group intentionally damage others and violates their physical, social, and/or emotional integrity. Young people are exposed to violence everywhere; where domestic violence, abuse, crime, and fights have become part of the everyday life of many young people in Mexico (Cisneros 2007). Almaguer, Lozano, and Peña (2014) noted that violence is considered by many as one of the main options to solve problems, especially among those who are constantly exposed to it. They argued that children learn what they see, so they replicate the actions that they observe; and thus, violence is for many of them something normal and part of their daily life, becoming a tolerated conduct and in some cases accepted and even fomented.

Conde (2011) argued that certain violent conducts could be linked to the school environment because violent environments surround some of them. Examples of school violence include discrimination, intimidation, bullying, disorder, classroom disruption, vandalism, teachers and students threatened by other students, carrying weapons to school, arbitrary application of rules, humiliations and abuse of power. According to Conde (2011) violence is common in schools that lack rules and authorities are not respected, with low levels of fellowship and responsibility, and without proper conditions to dialogue and peaceful conflict resolution. The media seems to be also responsible for spreading and

normalising violence, because they are the ones in charge of carrying information (Jimenez 2005), often releasing violent news, including homicides, expansion of criminal organisations, suicides, and many other crimes, many of which are committed in the school environment (Prieto Garcia 2005). The regularity of these events makes people stop thinking about the background or roots of such activities (Gomez Nashiki 2005), focusing only on some characteristics of the offender or place in which they occurred.

Researchers have focus mainly on the problem of violence among students, but not much attention has been paid to teachers' behaviour, which sometimes reinforces other violent practices (Furlan 2012). Institutional violence is the result of practices, norms, and/or guidelines that may harm the integrity of students. It includes, among others, improper punitive measures, use of nicknames, to indolence that puts the learning process at risk (Del Tronco Panganelli and Madrigal Ramirez 2013). Violence is common in many schools in Mexico, in which practices from the past such as a hard hand and even physical punishments, are linked to good behaviour and justified to control and correct certain conducts (Conde 2011; Gomez Nashiki 2005). On the other hand, many teachers think that bad behaviour is not related or originated inside schools, but it comes from the outside world (mainly from family, media and social conditions), so they do not do anything to solve the problem even if they recognise it, since is not their fault (Prieto Garcia 2005; Almaguer, Lozano, and Peña 2014).

Although violence has been suggested as one of the main risk factors linked to ASB in Mexican schools, other conditions inside schools could also explain this problem. These include poor relationships between teachers and students, lack of norms and values, teacher absenteeism, class improvisation and lack of control, segregation, harassment and aggression, indiscipline and incivility, lack of sense of belonging, racism and intolerance, school failure and grade repetition, and sometimes school growth (high teacher-pupil ratio) (Prieto Garcia 2005; Almaguer, Lozano, and Peña 2014). While it is not possible at this point to establish which factors could explain the link between poverty, inequality, and the perceived frequency of ASB in schools, the information presented here suggests that not everyone experiences the effect of these problems in the same way.

Many authors have indicated a link between some elements of poor and deprived schools and the increasing rates of crime and ASB; however, these conclusions seem to be drawn

using information from only few specific groups. Hence, the emphasis on the poorest and most vulnerable social groups might have resulted in partial research or false generalisations, as not much has been said about ASB among members of other social classes. Therefore, other factors might be necessary in order to comprehend more this complex relationship, especially those linked to coexistence and the environment within and around schools. Once again, social coexistence seems to be essential to understand the ASB in schools, where it has been pointed out not only the importance of the relations between students, but also with their teachers. In relation to the environment, the exposure that some young people have to crime and violence seems to play a very important role in shaping their own behaviour and attitude towards ASB. Furthermore, the excessive use of violence as a mechanism to solve conflicts and maintain order seems to have had an effect on their perception of some negative behaviours, where some violent acts have been normalised and even fomented.

2.4 Conclusions

This chapter discussed some important information about the problems of poverty, inequality, crime, and ASB in Mexico and in Mexican schools. It was shown that although Mexico is a very rich country, economic growth has not benefited everyone in the country and the high levels of inequality are now connected to many other social problems, including a growing informal sector, low tax revenues, disinvestment in public services (i.e. schools), and even crime. It is estimated that more than half of Mexican live in poverty, and unfortunately, traditional ways to improve living conditions are scarce, mainly due to a highly stratified society and public policies that seldom help those in need. It was also shown that poverty and inequality have had an immense impact in many schools, where "*access to a good education is linked to socio-economic status of the family*" (OECD 2015a, 30), and many of them lack basic goods and services, thus, students from the most deprived backgrounds face more challenges than the rest of the population.

The discussion focused particularly on identifying any elements and factor that could explain links between the levels of poverty, inequality, and ASB, particularly in schools. In this sense, it was shown that although a large proportion of crimes in Mexico are attributed to organised crime, several factors associated with poverty and inequality could be linked to

ASB. One of the main findings of this section was the fact that the vast majority of researchers have only focus on the analysis of the poorest and most deprived sectors of the population, and thus, very little is known about the effects of poverty and inequality on people of other backgrounds. In relation to the most deprived sectors of the population, the evidence suggests that lack of resources in schools has limited and even reduced the quality of their education, restraining further opportunities for many young people. Therefore, education is no longer seen as an alternative to overcome poverty and improve the quality of life, and traditional motivations have been replaced by apathy and boredom, where the very distant benefits of attending schools are meaningless for some of their students. Thus, for many of them other alternatives are now more appealing to overcome poverty, including informal jobs and even crime.

What is more, some of these schools have been highly affected by the rising levels of crime, a situation that has disrupted even more the school experience of many students. However, not all of the factors explored in this chapter are directly connected to the availability and disparities of economic resources, and other elements especially those linked to social connections and the environment seem to be necessary in order to untangle this complex relationship. In this sense, violence was identified as one of the main risk factors linked to ASB in the school context, mainly because violence seems to be normal among many students and teachers, as it is considered an adequate tool to discipline others and solve conflicts. The data analysed in this chapter also suggests that other environmental elements must be taken into consideration while assessing any social process in Mexico, as there are striking differences in relation to the levels of poverty, inequality, and crime between different regions of the country and localities of different size.

The information presented here will be of special importance for the development and interpretation of the quantitative models of this research and for any of its further implication, especially in relation to policy interventions. Yet, this evidence is mainly linked to structural factors of the Mexican context, and as noted by Conde (2011), it is important to identify external causes and risk factors, but particularly to understand the processes, practices, routines and strategies in which ASB is produced and reproduced. Therefore, before exploring any theoretical and methodological perspective that helps to establish an appropriate approach for this research, it is necessary to explore more studies about ASB in

schools, especially those that have used variables that measure and/or control for poverty and inequality. Thus, the following chapter will present some existing research linked to explanatory factors of ASB in schools, which will have the purpose of identifying more aspects for the construction of the models and possible gaps that this research could fill.

Chapter 3: Existing research on the relationship between poverty, inequality and Antisocial Behaviour in schools

3.1 Introduction

As indicated in chapter 2, the high levels of poverty and inequality seen in Mexico have produced immense disparities and a social division that have had very adverse consequences for many people, especially those from the most deprived backgrounds. The lack of opportunities and social discontent of several sectors of the population have made some illegal activities appealing for many young people, especially for those who feel that education is no longer an alternative to overcome poverty. In addition, the constant exposure to the high levels of violence and crime have affected many students, especially those from some of the most vulnerable backgrounds, who on top of dealing with their own problems derived from poverty and deprivation, have seen their education disrupted by other problems associated with the wave of violence that is shaking the country. However, the information from chapter 2 only highlights some structural effects of poverty and inequality in Mexico and does not show how these problems could directly affect the behaviour of students in schools. Furthermore, in order to construct an appropriate theoretical and methodological framework for this research, it is necessary to explore more quantitative analysis to identify other characteristics and elements that could predict ASB in the school context. Therefore, the purpose of this chapter is the analysis of some existing research about predictors of ASB in schools, focusing primarily on those studies that have pointed out different aspects of poverty and inequality in the school context.

The chapter consists of two main sections. Section one will expand the information presented in chapter 2 by introducing some studies about risk factors linked to ASB in Mexican schools. Section two will display studies carried out in other regions of the world with the purpose of comparing and expanding the findings of the existing research in Mexico and identifying gaps that this research could address. Because this chapter also aims to identify some theoretical and methodological elements that can be incorporated to this research, each section will show first a description of some of the most relevant studies, and then a discussion on how they can be contribute in the analysis and interpretation of the quantitative models of this study. The analysis of the different studies presented in this

chapter showed that, in the case of Mexico, there is a lack of empirical research in the field, especially of quantitative studies. In relation to studies in other regions of the world, despite a vast amount of research about ASB in the school context, most studies have only shown partial or inconclusive results, as they have not used appropriate measures of poverty and inequality, or they do not incorporated other elements that have also been identified as risk factors. Therefore, similar to the conclusions of chapter 2, it can be stated that in order to understand how poverty and inequality affect ASB in schools, it is necessary to consider different aspects beyond the availability of economic resources or the disparities between students. Some of the elements that should be incorporated into the research design of this study include other non-economic factors such as social connections and education, the inclusion of individual and school level variables, and use of environmental or contextual elements.

3.2 Existing research on antisocial behaviour in Mexican schools

After family, schools are often cited as one of the main educators of children and adolescents, because it is there where some of them spend most of the time, and thus, are exposed for the first time to problems such as fights, alcohol, drugs, and acts of crime. Human relationships are largely shaped in the school environment because it is there where many young people learn how to deal with order, power and authority, and in some cases even how to get away from rules while remaining in the system (Fernandez 1994). Even some children that do not always share the same values and attitudes as their parents, feel more identified in their school and among certain friends, mainly because this space might offer an escape from the tough environment at home and/or a solution to their problems (Blasco 2003). However, as highlighted in chapter 2, the school experience in Mexico is largely determined by the social background of each individual, where wealthier students benefit from education of good quality and exclusive social connections, whereas those from the most deprived areas often see their education disrupted, and in the most severe cases, schooling becomes meaningless. Although chapter 2 highlighted some elements and characteristics of the schools in Mexico that could be connected to ASB, there is an immense lack of research in the field as most of them lack empirical evidence or only highlight the consequences of ASB. Therefore, in order to address the increasing problem of crime in this country, researchers have to move away

from analyses of effects of ASB and begin to carry out more studies that explore the conditions under which this problem is produced and reproduced (Conde 2011).

While many scholars in Mexico recognise the importance of research about causal factors that might influence ASB, as noted in the previous chapter, the majority of the existing research in schools has focused on the effects of different forms of violence. Caudillo and Torche (2014) suggested the need of using data at different levels of analysis because they considered it essential to identify elements such as contextual factors and populations at risk, which could help to understand some determinants of human behaviour. In this sense, the results of empirical studies suggest that the effects of exposure to violence at the school level are mainly linked to higher rates of school failure and dropout (Caudillo and Torche 2014; Del Tronco Panganelli and Madrigal Ramirez 2013; Gomez Nashiki 2005). At the individual level, the effects of violence included an increase in fear, stress, and anxiety in younger people (Del Tronco Panganelli and Madrigal Ramirez 2013) and school expulsion (Gomez Nashiki 2005). Although this research does not aim to investigate the effects of ASB on students, some of these elements should not be discarded for the future analysis of the effects of poverty and inequality, as the exposure to violence was highlighted in chapter 2 as risk factors of young offending.

Some important elements of qualitative and descriptive analyses can contribute for the development of this research, which highlight (and confirm) the effect of some forms of violence and the importance social connections and of contextual factors (especially the importance of separating urban and rural areas, as both studies were carried out in cities). For instance, Del Tronco Panganelli and Madrigal Ramirez (2013) found that physical and mental violence were very common in some urban areas of the country, where around a quarter of the students that they interviewed had suffered some kind of aggressions, while 20 percent admitted being aggressing towards others. They also found out that membership of gangs, graffiti, verbal offenses, and use of arms and drugs were common in some of these schools, and peer pressure seemed to be one of the main factors that influenced their decision to get involved in ASB. Similarly, Prieto Garcia (2005) found in an ethnographic study in Mexico City, that due to neglect and family problems, some working class students often see peers as the only network of trust so they try to do whatever it takes to belong to such groups, even if it has negative outcomes.

Both studies also confirm the importance of the relationship between students and teachers, as many students that engaged in violent acts had a negative perception about their teachers, especially in relation to the excessive use of punitive measures (Del Tronco Panganelli and Madrigal Ramirez 2013), and because they felt many overlooked some negative behaviours of other aggressors (Prieto Garcia 2005). In this sense, Gomez Nashiki (2005) found that in some schools in Mexico City prevailed a double discourse among teachers; where on the one hand violence was highly criticised in all its forms, but on the other, institutional harshness was defended as a mean of guaranteeing success in the students' academic performance. He also noted that teachers often legitimate harsh discipline practices with victim's responsibility, and even some parents allowed these practices, arguing it is a corrective and legitimate measure. In line with this findings, Blasco (2003) found that adolescents behaved in a better way and had better school results if they developed a good relation with their teachers, and on the contrary, teachers whose attitude was despotic and inflexible, were often disregarded. These studies confirm many of the findings of chapter 2, especially the need of incorporating non-economic and contextual variables into this research. However, most of these studies either were carried out in schools of very particular environments or they seem to lack empirical evidence to support their findings, making impossible the establishment of any general conclusion. The fact that all these studies were carried out in public schools of large cities, raises a very important gap in research, as very little is known about other types of schools and small communities.

As mentioned in the introduction of this chapter, one of its main purposes is the analysis of risk factors (mainly linked to poverty and inequality) identified by previous quantitative research of ASB in schools. Yet, there is a lack of such studies in Mexico (Caudillo and Torche 2014), or they have focused on elements that are not relevant for this study (e.g. bullying, attainment, etc.). This lack of quantitative studies that link poverty and inequality with ASB in Mexican schools makes it extremely hard to identify other risk factors. Hence, research on crime and youth offending has been used to find elements that could be used for the purpose of this research, as several scholars have suggested a link between adolescence ASB and involvement in criminal activities in the adulthood (Booth, Farrell, and Varano 2008; Dornbusch et al. 2001; Gottfredson 2000; Mayer 2001; Sampson and Laub 1991). However, the purpose of analysing such studies is not establishing a direct link between ASB and crime but finding other economic and non-economic factors that could explain the variation in the

perceived frequency of ASB. The most relevant element in the context of this study is that besides poverty and deprivation, some elements linked to education had been identified as possible risk factors of crime and juvenile delinquency. For instance, in a descriptive analysis of imprisoned young offenders, Salazar Estrada et al. (2011) found out that around 70 percent of them lived in a marginalised environment, 39 percent of males and 63.6 of females had economic hardship, and around 69 percent of males and 59 of females dropped out school. In a similar way, Cisneros (2007) found out that 45.7 percent of inmates between the ages of 18 and 21 had primary school as their higher level of education, 27 percent of them middle school, 0.68 high school and 17.6 did not have any formal education. 35.4 percent of them left school because they did not have enough economic resources, 26 percent because they had to work and 18.3 for lack of interest, and only 4.39 percent of them were students when imprisoned.

In a study of the relationship between large youth cohorts or *'youth bulges'* and unemployment, Corona, Urdal, and Chaitanya (2013) did not find any significant relation between crime and per capita state GDP, rate of GDP growth, population, and urban population growth; however, they found a relationship with the level of urbanisation. This finding could confirm once again the importance of contextual factors, as most studies in Mexico have only analysed the effects of poverty and deprivation in very specific context (i.e. urban settings), and thus, often overlook those who those who do not fall into this specific category. What is more, the research of Corona, Urdal, and Chaitanya (2013) also suggests that in order to untangle the effects of risks factors, it might be necessary the disaggregation of some elements for different groups or sectors of the population. They established that lower levels of education could be a risk factor but only for specific groups. They found no relationship at all the analysis between youth unemployment and education with crime; however, when they disaggregated unemployment by low and high education, their results showed that youth unemployment rate in the low education stratum was associated with an increase in crime incidents per head. They also found that states with higher percentage of male youth are more vulnerable to crime if unemployment increased among low educated classes. In a similar way, Vicente and Leyva Moreno (2018) suggested that higher educational achievement reduced the probability of crime in northern, southern and Gulf States, but it was not statistically significant in the central and pacific states.

Although there is a lack of empirical research that links poverty, inequality and ASB in Mexican schools, the information presented in this section is very useful for this research, especially because it shows four important elements that will help to justify and interpret any further analysis. The first point is the immense gap in the literature, where authors often highlight the importance of schools in the development of children and adolescents, yet, there are not many studies that back their arguments or could indicate which factors are important and how they affect their development. The second element that could help this research is related to some of the findings of the existing qualitative studies, where some factors linked to violence and punitive measures have been described in schools with high levels of ASB and disorder. In this sense, it is especially interesting that not only do social connections between students seem to be important, but also the relations with their teachers, and thus, it would be necessary to incorporate both elements in the models of this research. The third element is connected to the relationship that exist between some factors associated with education and youth offending and crime in Mexico. The last element that will be incorporated into this research is linked to the importance of identifying populations or groups at risk in order to avoid false generalisations or partial results, as the findings of some studies suggest that some risk factors such as level of education, attainment, and unemployment are associated with offending but only among specific groups.

3.3 Existing research on the forms of capital and antisocial behaviour in schools

The link between adolescent ASB and problems in adulthood has been pointed out by many researchers around the world (Booth, Farrell, and Varano 2008; Dornbusch et al. 2001; Gottfredson 2000; Mayer 2001; Sampson and Laub 1991). In this sense, and similar to the literature in Mexico, schools are often highlighted as one of the most important institutions that are connected to adolescents, as they play a key role by shaping their development, and even defining their future. Therefore, there is no doubt that all those resources allocated to these institutions influence the learning and social outcomes of their students (Parcel, Dufur, and Cornell Zito 2010). However, as will be explored in this section, there are very different opinions about how poverty and inequality could be related to negative outcomes in the school context, including ASB. Hence, this section aims to introduce some important

research in the field, with the purpose of complementing the findings of the previous section and identifying other factors in schools that could help to unravel the possible relationship between poverty, inequality, and ASB in schools. Due to the vast literature about ASB in the school context, this section will particularly focus on those elements highlighted in chapter 2 and section 3.2, that is, those that seemed to be relevant in the Mexican context, which include among others, deprivation and disparities in economic resources, positive and negative social connections, and education.

The literature that links economic deprivation with ASB in schools is extensive. In this sense, parental income is considered by many a key element for the future outcomes of children (Parcel, Dufur, and Cornell Zito 2010), and in most cases it determines the availability of other economic and non-economic assets, and can even be used to improve the students educational experience (Bartee and Brown 2007). However, once again, the literature suggests that in order to evaluate the effect of poverty and inequality in students is necessary to take into consideration other factors, as the lack of economic resources seems to have a completely different effect on each students of different background. For instance, in a review of some leading research in school climate, Thapa et al. (2013) found that socioeconomic and cultural differences only explained some types of violence among students of urban and deprived areas, and thus, concluded that future research about factors that shape and predict violent behaviour need to take into account individual, group, and organisational features. Furthermore, Vandewater and Lansford (2005) suggested the inclusion of other non-economic elements to explain ASB, mainly because economic resources do not seem to be directly linked to this problem, but they alter other aspects of the social context that could indirectly affect the behaviour of students. Therefore, for the design of the theoretical and methodological background of this research, it might be necessary to include variables that reflect the economic and non-economic situation of both students and their environment.

Although many studies have suggested that economic inequality could be a good predictor of ASB in the school context, most of these findings seem to be inconclusive for two reasons. The first one is the fact that they address the problem of inequality only using measures at the school level (or higher), and therefore, they only indicate how economic disparities between schools (or regions) could explain differences in individual ASB rates. In this sense,

some studies have suggested that income inequality could be associated with higher rates of bullying (Elgar et al. 2013), victimisation (Contreras et al. 2015), and school delinquency (Stewart 2003), however, as they used aggregated data, they do not really explain how disparities between students could affect their behaviour. The second reason that makes the analyses of the effects of inequality in the school context questionable is that most studies have used the term '*inequality*' as a proxy of poverty and deprivation. Therefore, because these studies only focus on those students that fall into this category, very little is known about the effects of economic distance within and between schools (Contreras et al. 2015; Odgers 2015). This does not mean that this research should overlook school level variables or those students that live in poverty or deprivation; but in order to fill some of the existing gaps in research, it might be necessary to include all these elements in a more comprehensive approach.

In comparison to the effect of economic poverty and inequality, the literature about the link between social connections and ASB seems to be more consistent, as most studies have found similar effects regardless of environmental or contextual elements. Social coexistence is one of the most explored factors in the school context, where the evidence suggests that social networks play an important role for children and adolescents in issues such as student achievement (Goddard 2001), suspensions and arrests (Kirk 2009), and bullying (Sapouna 2010; Williams and Guerra 2011). After an extensive literature review in the field, Donlan (2003) concluded that common schools determinants of ASB include: fair discipline and moral authority, lack or low curricular tracking, expulsions, class size, and school type. Similarly, Gottfredson (2000) mentioned that according to several studies, attachment and commitment to school and delinquent peers where the strongest predictors of delinquent behaviour. She noted that schools might reduce delinquent behaviour by helping to develop self-control, and on the contrary, ASB might flourish because antisocial children tend to be rejected from other students and teachers; thus, the importance of negative peers increases. It can be noted that the literature indicates various elements that are associated to positive and negative social connections between students, but also with their teachers, and therefore, it might be necessary to include both in further steps of this research.

Similar to literature in Mexico, coercive and punitive environments seemed to be linked to higher ASB in schools. For instance, Unnever, Colvin, and Cullen (2004) found that those

exposed to coercive environments developed social and psychological problems linked to serious delinquent behaviour, and Thapa et al. (2013) pointed out that schools with more punitive discipline experience more violence and have reduced academic achievement. Some factors linked to punitive school environment that could contribute to ASB include: overreliance in disciplinary methods, unclear rules, weak and inconsistent support for staff, academic failure experiences, lack of academic skills, misuse of management procedures, lack of response to cultural differences, and lack of student involvement (Mayer 2001). On the contrary, the literature suggests that high quality school environment could substitute poor parental attachment and lack of parental involvement (Hoffmann and Dufur 2008), where positive outcomes are linked with good relationships not only with other students but also with teachers (Eccles and Roeser 2011; Meehan, Hughes, and Cavell 2003; Schwartz et al. 2009).

Following the findings of section 3.2 (those identified in Mexican studies), it can be noted that some research in other parts of the world has provided important findings about the relationship between education and ASB that could be of great importance for this research. The first aspect that can be highlighted is the importance of using educational elements beyond individual characteristics, where the evidence suggest that other environmental factors linked to education could explain differences in the behaviour of students. For instance, Donlan (2003) found out that some school with religious education could have a positive influence on their students, and that some family traits such as parental supervision and communication, influenced the behaviour of some students. Another important aspect that can be incorporated to this research are the expectations about future education, as they seem to be a strong predictor of ASB. Birnbaum et al. (2003) found out that among students who had expectations of completing a University career, school functioning was negatively linked to violent behaviour. Similarly, Harris, Duncan, and Boisjoly (2002) examined the link between adolescent's expectation about the future and risk-taking behaviour, finding that school-level conditions (i.e. aggregate educational expectations) were stronger predictors of risk-taking behaviour than individual level predictors. The last element link to education that can be incorporated into this research can also be identified in this study, where similar to the analysis of economic capital and social connections, both individual and school level variables seem to be important predictors of ASB. Similarly, Sabates, Feinstein, and Shingal (2011) showed that young people who grew up in cohorts with large disparities in academic

performance might be more prone to commit violent crime and racially motivated offences; and higher between and within school disparities were also associated with higher convictions for violent crime and racially oriented offences.

Three important elements can be highlighted from the results of studies about ASB in schools that have used multiple levels of analysis, which can contribute to the development of this research, especially while planning the research design. The first element supports the use data of secondary schools and the analysis of differences between and within schools. In this sense, Gottfredson (2000) found that school-level studies were relevant at primary and secondary schools, but not in high schools, and they are persistent after controlling for individual-level variables. Gottfredson et al. (2005) also found in an analysis of secondary schools in the U.S. that most of the variance in individual measures of school disorder resulted from within-school variation. Lastly, Gottfredson and DiPietro (2011) suggested that most variation in student victimisation was also between individuals within schools rather than between schools.

The second element confirms once again the relevance of contemplating environmental or contextual factors. In a study of individual and school-level factors linked to school misbehaviour, Stewart (2003) found that most of the variation in the dependent variable was explained by larger schools in urban areas. Obberwittler (2005; 2007) showed that in Germany, neighbourhood effects existed but only among native welfare recipients (i.e. non-immigrants), and the influence was particularly strong for girls; nonetheless groups identified in other studies (mainly in the US), such as ethnic minorities, did not seem to be affected. He concluded that youth delinquency in disadvantaged neighbourhoods was strongly influenced by factors such as low educational status, preference for unsupervised routine activities, family life, and schools.

Lastly, the third point that could be incorporated in the design of this research is related to the aggregation of individual measures at the school level. Brezina, Piquero, and Mazerolle (2001) conducted a study of aggressive students in public high schools, showing that an aggregate measure of student anger was associated with school-level differences in student-to-student aggression but was not significant on a general measure of aggressive behaviour (including teachers). They also found that students were more likely to get involved in fights when the overall levels of anger in the school were high, controlling for individual anger and

other individual level characteristics. These studies suggest the use of different levels of analysis in this study, not only because individual and environmental factors have been highlighted as important predictors of ASB in schools, but also due to the interdependence that elements at different levels of analysis seem to have.

Chan et al. (2016) highlighted the importance of using individual and collective analysis of school environments, pointing out the fact that larger systems influence individual behaviours and experiences. Yet, despite the importance that both, individual and school level factors seem to have on explaining ASB in the school context, most studies in the area do not take into account the effect of multiple levels, so "*researchers know little about how school delinquency varies among and within schools*" (Stewart 2003:576). Hoffmann and Dufur (2008) noted that most research that relate delinquent behaviour to school factors concerns to individual-level variables even though contextual factors are known to have a direct impact on individual-level behaviour, but also to condition the impact of individual-level explanatory variables. What is more, although it is common to find that different scholars have pointed out the same elements linked to ASB in schools at the same level of analysis, it is rare to find studies that use together elements at different levels. For example, in a literature about bullying and peer victimisation, Hong and Espelage (2012) found that numerous authors have pointed out common risk factors at different layers, including cultural norms and beliefs (macro), teacher's attitude and involvement (meso), and parental influence, peer relations and schools connectedness (micro). Similarly, Hong and Eamon (2012) found that common factors linked to perceptions of unsafe school environments included parental relationships (micro), and school coexistence and rule enforcement (meso).

This section presented some elements of the existing research about ASB in the school context that can complement the findings of literature in Mexico. It can be concluded that although there are many studies that link low levels of economic resources with ASB, most of them could show partial or inconclusive results, as they usually focus only on factors at one level of analysis, overlook other non-economic elements, and/or do not consider the own particularities of the context. However, the fact that some of these studies might have shown partial or inconclusive results does not mean that some important elements can be incorporated to this research. In this sense, three aspects will be especially relevant in the

construction and interpretation of the quantitative models that will try to analyse the relationship between poverty, inequality, and the perceived frequency of ASB in schools. The first aspect is the inclusion of not only economic variables, but also other non-economic elements, especially those that include positive and negative social connections with other students and with their teachers, and educational aspects. The second aspect is the incorporation of contextual or environmental variables, especially those that allow the analysis of the effects of poverty and inequality in particular groups or subpopulations (e.g. urban vs rural, public vs private schools). Finally, the third aspect that can be incorporated into this research is the use of multilevel models, which will allow the analysis of individual and school level variables.

3.4 Conclusions

This chapter presented different studies that have addressed the problem of ASB in the school context, with the main purpose of identifying theoretical and methodological elements that could help in the design of this research. Although poverty and inequality have often been highlighted as causes of youth offending and ASB in schools, in the case of Mexico, there is an immense lack of research to support this assumption, as most of the existing studies lack empirical evidence or they have focused only on analysing the effects of violence and crime in the school context. What is more, even those studies that have explored this relationship in other regions of the world have not been able to fully address this issue, as most of them only show partial or inconclusive results due to the lack of more comprehensive approaches that integrate different elements and levels of analysis. Therefore, the analysis presented in this chapter will also help to support part of the original contribution of this research, as this study will aim to fill some of the gaps that were identified in the existing literature.

In relation to the link between poverty and ASB, the evidence suggests that this relationship depends to a large extent on other factors, most of which have been studied by separate, so very little is known about the interaction of things like social connections and education with the lack of economic resources. Similarly, because most studies have been carried out in very particular settings (such as public schools of urban areas), not much is known about how these issues affect other contexts or environments, including different types of schools and

those who live in communities of different size. What is more, the analysis of only those students who fall into specific categories (i.e. low levels of economic resources, public schools, etc.) has restricted the knowledge about other social groups, which could create false assumptions about the effects of poverty, while fostering stigmatisation of those who live in this condition. Additionally, the evidence presented in this chapter suggest that any exploration of differences in ASB should include measures that allow the examination of the distribution of economic resources within schools, as most studies have only done so at the school level.

More specifically, apart from those elements directly linked to the availability of economic resources, four important findings from previous research about ASB in the school context will be used for the research design of this thesis. The first one is linked to the fact that various studies in Mexico and in other parts of the world have found that social connections are very important predictors of ASB, where several authors have highlighted the importance not only of the coexistence between students, but also the relations that these could have with their teachers. The second one is the use of variables linked to education, as some scholars have suggested that different aspects linked to this element such as level of education, attainment, and expectations about education could be important to predict offending among young people. The following element is that in order to fully understand any social problem, including the behaviour of students, it might be necessary to also explore these issues among different social groups, as it has been shown contextual factors can predict differences in ASB among different subpopulations. Lastly, because different elements at individual and school level were identified as risk factors, the use of multilevel models seems appropriate for this research, as it will allow the analysis of variables at both levels of analysis together. Moreover, multilevel modelling will allow the examination of other important elements highlighted by some researches, including the aggregation of some individual variables at the school level.

Thus, in light of the evidence presented in this chapter, this thesis will incorporate several aspects of previous research in a more inclusive or comprehensive approach, considering the following five aspects:

1. The use of variables that allow the analysis of the economic resources of all students and schools, not only those who are considered *'poor'*.

2. The use of measures of inequality in which differences within schools (or between students) can be assessed.
3. The use of other factors beyond economic resources, especially those linked to social connections and education.
4. The incorporation of student and school level variables in the same analysis (using multilevel models).
5. The use of other contextual or environmental factors and the analysis of subpopulations.

Chapter 4: Research Framework

4.1 Introduction

As discussed in chapter 3, research about antisocial behaviour in schools in Mexico is scarce, and most of the existing studies have focused only on trying to explain its consequences. What is more, although many scholars have highlighted the importance that poverty and inequality could have in this issue, the lack of empirical research makes almost impossible the establishment of any conclusion. Even those studies that have explored this relationship in other countries have produced inconclusive or partial results, as most of them focus on specific aspects of those who live in poverty, and thus, overlook other important elements. It was concluded that in order to explore the relationship between poverty, inequality, and the perceived frequency of ASB in schools it was necessary to incorporate some elements in a more comprehensive approach, including measures of the distribution of economic resources among all social groups (and not only the *'poor'*), social connections and education, individual and school level variables, and contextual factors. Therefore, the purpose of this chapter is to build a conceptual and theoretical link between all these elements connected to the analysis of poverty and inequality, and some existing theoretical perspectives, which will help to explain how these issues might relate to ASB in the school context. This research framework, which incorporates different concepts and theories, will serve as the basis for the quantitative analysis of this research, allowing the exploration of the perceived frequency of ASB in schools in terms of economic, social and cultural resources, the disparities of these resources between and within schools, and the differences among different types of schools and localities.

Following Kerlinger's (1979) definition of theory[5], the chapter is divided into two main sections. The first one will frame the key concepts of this study, with the aim of providing a clear understanding about the main variables that will be used in the quantitative models of this research. Hence, the section will begin with a definition of antisocial behaviour, which will include a brief discussion about how this concept will be used for the purpose of this

[5] Kerlinger (1979, 64) defined theory in a quantitative perspective as "a set of interrelated constructs (variables), definitions, and propositions that present a systematic view of phenomena by relations among variables, with the purpose of explaining natural phenomena".

research. Then, the concepts linked to the explanatory variables will be discussed, providing a definition for poverty and inequality, and other elements that will be important to examine their link to ASB in schools. In this sense, this section will introduce the term '*capital*', which will be used instead of poverty in order to address two of the issues highlighted before: the analysis of resources among all people (not only those who are considered poor), and the inclusion of social connections and education.

The second section of this chapter will explore some theoretical perspectives that could help to explain the link between the dependent and independent variables (Creswell 2014), that is, theories and propositions that can be incorporated in an analysis of the relationship between capital, its inequality, and differences in the perceived frequency of ASB in schools. As mentioned in the conclusions of chapter 3, the research design of this thesis should be based on a comprehensive approach that includes (among other elements): different levels of analysis that explore individual and environmental characteristics; multidimensional measures of economic, social, and cultural capital; and inequality measures at different parts of the distribution for each the forms of capital. Therefore, in order to untangle the complex link between capital, inequality, and the perceived frequency of ASB in the school context, this research will integrate different theoretical and methodological approaches, as not a single consistent framework addresses all the complexities of this relationship. It is in this sense that different levels of theory will be discussed in this chapter, including grand theories such as Ecological System Theory (Bronfenbrenner 1979, 1994), middle-range theories such as the forms of capital (Bourdieu 1986), and substantive theories that offer an explanation for the use of capital and inequality measures, from an economic and criminological perspective[6].

4.2 Framing theoretical concepts

Before exploring any theoretical perspective that facilitates and supports the analysis of the relationship between poverty, inequality, and the perceived frequency of ASB in the school

[6]According to Camp (2001), theories can be divided into grand theories (explain major categories of phenomena), middle theories (somewhere between hypotheses of everyday life and grand theories), and substantive theories (offer explanations in a restricted setting and are limited in scope, often expressed as propositions or hypotheses).

context, it is necessary to explore the very meaning of these words, as they could be (and indeed have been) understood in very different ways. In relation to ASB, it can be noted that the norms that regulate social behaviour change constantly, and thus, certain behaviours that are not socially acceptable nowadays, were tolerated in the past, and vice versa. Similarly, the way in which poverty and inequality have been interpreted by different scholars have produced dissimilarities in their outcomes, where some of them link several social problems such as crime and ASB to poverty and deprivation, while others think that these issues are the result of the disparities that exist among social groups. Yet, most social theories that are available nowadays were the result of a specific time and place, and hence, they served to explain a particular problem within their own context. Therefore, scholars have given different interpretations to certain behaviours and processes based on their own background and understanding of them, making difficult (and probably impossible) to establish rules or correlations that fully explain collective processes As explored in this section, this situation seems to have particularly shaped many of the outcomes of the studies discussed in this thesis, especially those that explored the link between different levels of economic capital and the levels of crime and ASB.

Therefore, in order to define the main theoretical and methodological aspects of this study, it is necessary first to explore the strengths, weaknesses and other basic ideas behind the concepts of ASB, poverty and inequality. Hence, the purpose of this section is to provide a framework for the concepts linked to the dependent and independent variables of this research. This section is divided in two different subsections. First, a clear definition of crime and antisocial behaviour will be provided, arguing that the use of the latter fits better the purpose of this research due to the lack data and regulations about youth offending in Mexico. This definition will be followed by a brief introduction to the concepts of poverty and inequality, which as will be discussed, have been erroneously used by many researchers in the past. This discussion will provide the grounds for the use of the term '*capital*' instead of poverty, a concept that will allow the exploration of the benefits of wealth among all students (not only the poor), and which will provide the grounds for the use of Bourdieu's (1986) forms of capital, which will allow the incorporation of social and cultural assets.

4.2.1 Conceptualising crime and ASB

In all human civilisations and most social groups, behaviour has always been regulated by collective rules that somehow establish what is socially acceptable and what is not. These regulations must be abided by all members of the different formal and informal structures in order to fully integrate and benefit from them, and include, among others, religious practices, moral precepts, and laws. Although human interaction has been studied for a long time, it was only at the beginning of the twentieth century that academics became more interested in examining the reasons why some people break those social rules. Since then, a large number of studies and theories have tried to explain criminal behaviour from different perspectives and methodological stances. Yet, most regulations of communal behaviour, and therefore, the concept of crime, are not static, as they vary from place to place and across time. Therefore, these theories were the result of a specific time and place, explaining a particular problem within their own context. Thus, some activities now considered normal and even encouraged (e.g. female vote, freedom of speech and religion, etc.) were socially rejected in the past, and vice versa, some actions that are nowadays punished (e.g. slavery, smoking in public spaces, consumption of some drugs, etc.) were tolerated and accepted in earlier times.

Wikstrom (2006a) argued that without a clear conception of what is crime, what motivates people to commit crime, and how individual and environmental features interact in this process; it is not possible to understand the causes crime. Although this study does not aim to analyse the causes of crime or ASB, the argument of Wikström remains relevant as it is essential to have a clear conception of the terms involved in this thesis before exploring any possible relationship, and because some studies have also highlighted the importance of individual and environmental features and their interaction. Taking into consideration that laws constitute formal regulations of specific human behaviours, '*crime*' can be defined as "*an action or omission which constitutes an offence and is punishable by law*" (OED 2016a). Yet, this term would not be appropriate in this research for two reasons. The first and possibly the most important one is that, as mentioned in chapter 2, in Mexico there is an immense lack of data that explores juvenile delinquency, including crimes committed in the school context (and around 93 percent of crimes are not reported (INEGI 2016b)). The second reason is also connected to the limitations of the Mexican context, where there is not

a consistent framework that regulates the activities of all young people as each state has its own legislation.

Therefore, this research will use the concept of antisocial behaviour instead of crime. Frazier (2011) defined antisocial behaviour (ASB) as external behaviour and actions that violate the rights and norms of others, and which is usually influenced by different aspects of the child's life, including their family, community, and school. Due to the focus of this thesis and the vast research that exist in relation to ASB of children and adolescents, Mayer's (2001) definition of ASB in the school context will be used to operationalise this study. Mayer (2001:414) described ASB as "*violation of socially prescribed patterns of behaviour*", which include aggression, vandalism, defiance of authority, and violation of social norms. Moreover, because ASB is a very broad concept that includes many behaviours and actions, this thesis will focus on the subdivision that Hinshaw and Lee (2003) made, which according to them has received considerable external validation. According to Hinshaw and Lee, ASB is divided into two broader subtypes: overt (characterised by interpersonal aggression, which can be either verbal or physical) and covert (described as nonaggressive behaviour such as stealing, destroying property, substance abuse, and truancy).

This conceptualisation of ASB seems to fit very well with the aim of this research because it provides a good framework to analyse human behaviour in the school context, which would not be possible with crime due to the limitations described before. However, although the term ASB provides a good conceptual framework for the dependent variable, the use of '*poverty*' and '*inequality*' (which will be the basis for the independent variables of this research) have carried some theoretical and methodological problems, producing some research where these issues are not fully addressed. For instance, the term poverty has been used mainly to refer to a situation of economic deprivation; yet, the quality of life of individuals cannot be measured only in monetary terms, as the needs of people depend also on other non-economic factors. Similarly, the misuse of the term inequality has produced research that either focuses only on economic poverty or uses aggregate data that does not allow the examination of the effects of disparities between individuals. Therefore, the following section will provide a framework for these terms, providing a definition of poverty and inequality, and introducing the term *'capital'*, which will be used instead of *'poverty'* in

order to explore ASB in all social groups (and not only the poor), and to incorporate those dimensions of wellbeing that were identified in the literature review.

4.2.2 Conceptualising poverty, capital, and inequality

Throughout recent history, the study of wealth and its distribution has taken very different angles, which in turn have defined how we see and understand problems such as poverty and inequality. Most people are aware that some inhabitants of the most deprived regions of the world live under an absolute deprivation of the most basic needs such as housing, food, education, and health services. Nonetheless, poverty is not only a problem of low-income countries as even the wealthiest regions of the world still have people who are considered poor according to their own poverty definitions and national thresholds. The word poverty derives from the Latin *'pauper'* which literally means '*cheap, of little worth, or scantily endowed*' (OLD 1982). Thus, most people would refer to '*the poor'* as those who are deprived of something, or those who live below a line of 'accepted' living standards; however, these notions are most of the time social constructions that vary from place to place and change over time. Walker (2015) noted that poverty is something that probably everyone recognises when they see it, but most people would find very hard to define it. Poverty can take two different lines: absolute and relative poverty. In absolute terms, poverty reflects the lack of means to satisfy basic needs, while relative poverty refers to different requirements that lead to a fulfilment of living standards of individuals in a social community (United Nations 1990). Yet, both definitions have been widely criticised by many academics, mainly because it is extremely difficult to define what is considered a basic need or minimum living standards, and thus, to create a general categorisation of who is considered as poor and who is not.

The notion of poverty is something that has defined most societies throughout history; however, as noted by O'Connor (2016), poverty research (i.e. analysis of the poor and gathering data about them) is something relatively new. Most of the first studies on poverty and its effects assumed a direct relationship between some social problems (e.g. crime) and those who were at the bottom of the social ladder, and in the worst cases, even labelling poor people as criminals (e.g. Booth 1889). These studies were based on the categorisation of people into different social classes, establishing standards of living to separate the poor from

the non-poor (United Nations 1990). Income was first introduced as a proxy of social life by Arthur Pigou (1932) who aimed to simplify the measurement of wellbeing and promote a minimum level of quality of life. He called this approach economic welfare, that is, those aspects of social life that can be brought directly or indirectly into money, stating that '*no precise boundary between economic and non-economic welfare exists*' (Pigou 1932, 8). The majority of the studies that followed Pigou's research were based on analysis of wealth distribution in terms of the percentage of the population within different income brackets; and consequently, most policies have used a poverty line to specify the exact level of income below which people are considered poor. However, as Sen (1995:102) pointed out, these poverty measures pay '*no attention to the fact that people could be a little below the line, or a lot, and also the distribution of income among the poor may or may not be itself very unequal*'.

Similarly, inequality has also been conceptualised in different ways, affecting not only the understanding about it, but also the way in which it relates to other social problems. The term inequality, which literally refers to '*the lack of equality… or a difference of size degree and circumstances*' (OED 2016d), is commonly used to describe the disparities in wealth in a society. Wilkinson and Pickett (2010) suggested that even though most of the inequality that exists in the world can be explained by differences in wealth between countries, the inequality that exists within nations could be directly (or indirectly) linked to some of the biggest problems that modern societies face (including crime and violence). The increasing disparities seen in many regions have made the word '*inequality*' extremely popular in political discourses, news reports, and is also present in several academic discussions and articles (Atkinson 2015; Piketty 2014; Sen 1995, 2001; Stiglitz 2013; Wilkinson and Pickett 2010). Yet, similar to poverty analyses, income inequality has been the most studied type of inequality. Therefore, its use as a proxy of all types of inequality has also generated controversy, mainly because money is not sufficient to assess social welfare, and income distributions do not reflect all the characteristics of individuals (Justino 2005). Changes in income poverty and income inequality do not necessarily mean changes in other dimensions. This might result from the fact that income alone cannot capture all the relevant aspects of wellbeing; and certainly, many attributes and needs such as public services, access to health and education, and the conditions in the labour market, do not depend directly on income (Binelli, Loveless, and Whitefield 2015).

Maasoumi (1999:1) pointed out that even *'the very meaning of "income" inequality is ambiguous when households and individuals are known to have different characteristics and means*". He also noted that the use of an income-based approach to welfare comparisons has raised serious concerns about their legitimacy. Although income can be very useful to assess some consumption patterns and even opportunities, it cannot really reflect all the benefits, needs, and abilities of people, because many of these characteristics lack a market transaction in monetary terms (Maasoumi 1999). Sen (1995) noted that most researchers in recent decades have taken a more or less egalitarian approach; nonetheless, equality is not unidimensional and thus it is necessary to address the question of '*equality (or inequality) of what'*. He argued that all human beings differ from each other in relation to their own external characteristics and circumstances (e.g. inherited wealth, hostile environments, opportunities in our communities, etc.) and personal characteristics (e.g. age, gender, physical abilities, etc.), all of which can be used to assess inequality. Due to this multidimensional nature of poverty and inequality, it would not be appropriate for this research to use an approach based only on economic wealth or income, as other important aspects of the quality of life of students and schools would be overlooked. What is more, by only using the concepts of economic poverty and inequality, this study would ignore some important findings of previous research, which pointed out that other elements such as social connections and education, could explain differences in ASB in the school context.

Despite an apparent recent consensus about the heterogeneity of poverty and inequality, there is still a lack of a consistent framework to conceptualise and measure them (Binelli, Loveless, and Whitefield 2015). Hence, this research proposes the use of the concept *'capital'* instead of poverty, in order to address some of the challenges mentioned above. The word *'capital'* in economics is used to describe the '*material or financial wealth, accumulated by an individual or a company'* (Hashimzade 2017). This term derived from the Latin word *'caput'* which literally means '*head*' (Cannan 1921), acquired especial relevance when the Scottish economist Adam Smith (1776) introduced a division of stocks in his renowned book '*The Wealth of Nations'*. Smith distinguished between essential and non-essential stocks, that is, those assets derived from labour and which could be used for the immediate consumption of essential goods and services, and those who can be accumulated in order to yield revenue (calling the latter *'capital'*). The concept of capital seems appropriate for this research for three reasons. The first one is that this term does not restrict the analysis to some individuals

or institutions who fall into a specific category. The second reason is that it assumes that accumulated capital *'yields'* revenue or profit, and thus, differences in capital might be associated with differences in other outcomes (and probably ASB could be one of them). The third derives from one of Smith's main contributions into the field of economics, the expansion of the use of the word capital to include monetary and non-monetary wealth (Cannan 1921), hence, other important elements identified in the literature review can be incorporated in the analysis of ASB in schools, including social connections and education.

Although Adam Smith did not contemplate social connections and education when he defined capital, the term has evolved in a way that *'capital has now acquired the broad meaning of a stock or reserve of anything of social or economic significance'* (Hodgson 2014, 1075). In this sense, the French sociologist Pierre Bourdieu (1986) introduced a division of capital that fits the purpose of this research, as he established that capital (which he referred as socially valued objective and subjective resources) could exist in three different forms: economic, social, and cultural capital. This theoretical approach will be discussed in more details in the following section, yet, the incorporation of different forms of capital into this research will not only make possible to address some of the main theoretical and methodological challenges found in the literature review, but it will also contribute to the own originality of this study. The use of the forms of capital will allow, in one single analysis, the exploration of the effect of economic, social and cultural capital on ASB in the school context, elements that have been addressed separately before.

However, there are still many challenges in order to establish an adequate research framework that fits the purpose of this research. Probably the biggest one is the integration of different theoretical and methodological approaches in one single study, which includes the use of individual and school level factors, and measures of capital and inequality together. Another important challenge is the use of appropriate measures of capital and inequality, which, as introduced in this section, has produced many debates in the field of economics. Hence, the following part will introduce different theoretical perspectives in order to set the basis of this research, with the purpose of making possible the integration of all these elements in only one analysis of the relationship between '*capital*', inequality, and the perceived frequency of ASB in Mexican schools. In particular, three theoretical

perspectives will be introduced, which despite addressing different issues of this research, are not mutually exclusive, and thus can be incorporated in a comprehensive approach.

4.3 Theoretical perspectives

Wheeldon (2015) pointed out that many scholars have not been able to contribute to social progress due to philosophical assumptions that use inflexible premises based on alleged universal truths, thus leaving little room for the acceptance of other external ideas. Hence, many researchers that have explored ASB in schools have generated partial and inconclusive results as their analyses have been based on particular elements and very specific contexts. Perhaps one of the main limitations in the analysis of ASB in the school context is the lack of a consistent framework that allows the integration of elements identified by previous studies, including those linked to poverty, deprivation, and inequality. However, in recent years, some social researchers have begun to adopt a more practical position in which the use of theory does not define from the beginning the outcomes of their studies (unless they are testing a particular theory), but help them to solve practical issues that may arise throughout the project (Loader and Sparks 2012). For instance, Wheeldon (2015) supported the use of a pragmatic stance, using a variety of arguments to establish premises with social utility and always remaining open to other more comprehensive ideas. In this sense, it can be noted that this research does not aim to test any particular theory or concept, but to use some elements of different theories in order to establish a framework that can be used for the construction and interpretation of the quantitative models. Thus, the purpose of this part is to present some theoretical perspectives that can be used to analyse the relationship between capital, inequality, and the perceived frequency of ASB in the schools, which allow the inclusion of findings of previous studies and incorporate new elements that can help to solve some of the issues highlighted in chapter 3.

Following Wheeldon's (2015) proposal, the perspectives will be based on the integration of different theoretical elements (Ecological Systems Theory and the forms of capital), methods (multilevel modelling, SEM, and GE), level of analysis (student and school level variables), and disciplines (sociology, criminology, and economics). This section consists of three different subsections, each addressing a different theoretical perspective based on the elements mentioned above. Section 4.3.1 will introduce some ideas about Ecological System

Theory, an ecological approach that will support the incorporation of individual and environmental factors, that is, the use of student and school level variables. Section 4.3.2 will discuss Bourdieu's forms of capital, which will be used in order to incorporate some elements identified in previous research and that are not dependent on economic resources (i.e. social and cultural capital). Lastly, section 4.3.3 will discuss some methodological elements about the analysis of poverty/deprivation and inequality, including the use of Structural Equation Modelling (SEM) to calculate variables for each form of capital and Generalised Entropy (GE) to establish inequality measures. As mentioned before, while these perspectives address different issues, they are not mutually exclusive, and hence, they can be incorporated in a comprehensive approach, which will be the basis of the quantitative model of this research.

4.3.1 Integration of individual and environmental factors

Most studies about the effects of capital and inequalities have been driven by temporary and context specific currents of thought, producing, in many cases, partial results that ignore and/or undervalue characteristics and elements of other places and times. Hence, despite the large number of studies about the relationship between the different forms of capital and crime/ASB, there is still an immense diversion in opinion about the role of individual and environmental factors in this relationship, as researchers usually focus only on one of these aspects. As noted by Jim Short (1998), criminologists are still losing sight of the connection between societal factors, immediate context, and individuals; pointing out that individual processes have more value if they are situated within social context. However, as most scholars are now aware that any valid argument in the present can be disproved or downplayed by better validated principles in the future (Berube 2008), they are developing new attitudes that recognise the fact that criminological studies can gain more by remaining open to other intellectual ideas (Savelsberg and Sampson 2002). For instance, Bottoms and Wiles (2003) stated that most environmental studies in the past tended to be '*deterministic*', however, it is essential to take into account both, individual and social perspectives, in order to understand and explain social problems, arguing that places cannot explain by themselves crime simply because they are *'intrinsic dimensions of human existence'*.

It is in this sense that some aspects of the Ecological System Theory developed by Urie Bronfenbrenner (1979) provide a useful framework for the integration of individual and environmental factors that can be used in the analysis of the relationship between the forms of capital, their inequalities, and the perceived frequency of ASB in the school context. This theory states that the development of children is shaped by their own characteristics, their social relationships, and the world around them. Bronfenbrenner (1979) stated that socio-demographic elements of young people and their families can affect their interaction with other immediate and more distant settings; consequently, human development is shaped by this interaction between people, objects, and symbols in the environment. It is important to note that Bronfenbrenner did not blame only social and environmental structures for individual behaviour, and indeed, he affirmed that the '*form, power, content, and direction*' of proximal processes (exposure to environment) change according to the own characteristics of the individual, the environment, and nature of the outcomes (Bronfenbrenner 1994).

Researchers from different fields, especially in sociology and education, have used Bronfenbrenner's approach, especially to analyse and understand some problems of children and adolescents in different contexts. Therefore, this theory allows the inclusion of those elements at different levels of analysis that were identified in the literature presented in chapter 4. That is, Ecological systems theory supports the argument that the behaviour of students is shaped not only by their own characteristics (i.e. their own economic resources, social connections, and culture), but also by those in their immediate environment (i.e. capital of their schools), which in turn, are affected and shaped by other structural elements (i.e. size of locality). Indeed, Ecological System Theory has also been used in few analyses of ASB in the school context, including studies about violence in schools (Chan et al. 2016), physical victimisation (Foster and Brooks-Gunn 2013), and the link between maltreatment and educational outcomes (Romano et al. 2015).

In Criminology, some scholars have adapted some elements of this theory to fit their own purpose, analysing nested layers and explain offence and offender-rate variation over time and space. For instance, Bottoms and Wiles (2003) developed their own ecological approach to explain the fact that national housing policies, local housing markets, and personal characteristics and preferences were all responsible for the allocation of antisocial families and individuals in some defined areas. As shown in figure 4.1, they used only three different

layers[7], pointing out that processes at different levels are interconnected and some issues, especially at macro-levels, cannot be interpreted without taking into account other features of the contexts within which they take place. Therefore, Bottoms and Wiles (2003) advocated for the use of an *'environmental heuristic model'*, that is, the use of those existing macro, meso and micro processes and structures that are linked to the own context and characteristics of a particular problem. This 3-layered approach seems more appropriate in the context of this research than the original framework of the Ecological Systems Theory, mainly because this study does not aim to analyse changes over time, and because of the lack of data about the relationship between different settings of the national context.

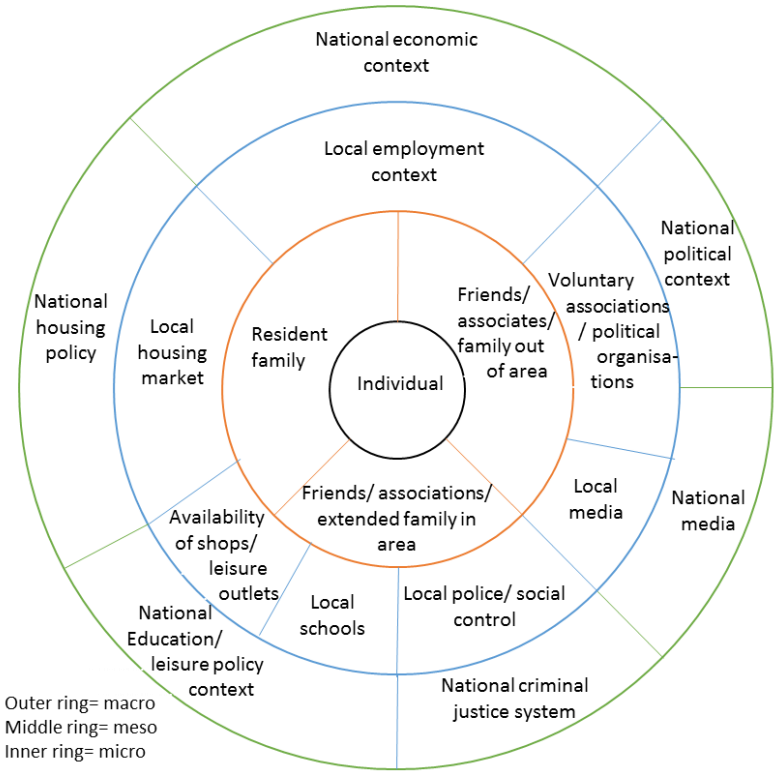


Figure 4.1: Heuristic model of the context of offending.
Source: Bottoms and Wiles (2003)

[7] Bronfenbrenner (1979) used five layers in his theory: microsystems (direct relationships with the individual), mesosystems (interconnections between microsystems), exosystems (relationships between settings), macrosystems (individuals' culture), and chronosystems (changes over time).

Perhaps one of the main criticisms of Ecological Systems Theory (and any approach based on it) would come from supporters of both, individual or environmental approaches, as many of them have argued that it is not possible to establish conclusions based on either particular or social factors. For instance, Jock Young (2004) argued that research should focus more on individual aspects rather than social interpretations because social and cultural variables are reinvented all the time. In the same way, Anthony Giddens (1984) considered that people's conduct could not be generalised mainly because the interpretation of its causal factors varies among actors. In contrast, many other scholars, including the supporters of *'Strain Theories'*[8] and the so-called *'Chicago School'*[9], have claimed that environmental factors are responsible for the development of certain conducts, subsequently attributing the responsibility of social problems to social structures, downplaying individuality and human agency. What is more, while supporters of ecological approaches would argue that analysing all the characteristics of the different layers would bring a better understanding about social problems, it would be almost impossible to examine all the factors in one single study. Consequently, the main challenge of using this approach in this thesis would be the lack of data and the complexity to process all the information.

Therefore, a '*environmental heuristic model'* such as the one suggested by Bottoms and Wiles (2003) would be adequate for this research, as it would incorporate only the most relevant (and available) individual characteristics and environmental features to assess a specific problem in a particular context, respecting the different nested layers of information (i.e. individual and school level variables). This ecological approach would not restrict the inclusion of other theoretical elements into the analysis of ASB in the school context, including the forms of capital of Bourdieu, as each layer can contain elements linked to economic, social, and cultural capital. What is more, this ecological approach can be used to justify the use of other factors across different layers, thus allowing the analysis of

[8] Strain theories (Merton 1938; 1968) focus on the inability of lower-class individuals to achieve monetary success and class status, arguing that some social structures exert pressure upon some individuals to pursue certain goals and to engage in '*non-conformist'* activities, including crime.

[9] The Chicago School is a school of thought that is best known for its studies on juvenile delinquency and the introduction of the term '*neighbourhood effect,* a concept can be described as the reproduction of criminal behaviour as a result of social conditions in specific arears, especially in deprived neighbourhoods (Bottoms 2012, 451).

inequalities within and between schools. Therefore, this thesis will explore the perceived frequency of ASB in schools based on individual or micro characteristics, including the economic, social, and cultural capital of each student, which, as observed in figure 4.1, will incorporate their own characteristics and those linked to their household and families. At the meso or school-level, the variables will include measures of each one of the forms of capital of the schools and those linked to their inequalities, as well as other characteristics of these institutions such as the type of school. Lastly, although it was mentioned that there is a lack of data at the macro level, the variable size of locality will help us to analyse a very important element that was highlighted by many studies in the past, that is, the difference between urban and rural settings.

4.3.2 The forms of capital

Pierre Bourdieu is considered one of the most influential scholars of the 20th century; his work covers a large range of topics and has been broadly used in numerous fields. Perhaps one of Bourdieu's main contribution in Sociology was his work about how social structures shape individuals' behaviour and vice versa. As mentioned before, this research will use Bourdieu's division of capital, as it provides a framework that allows the analysis of the effects of capital beyond economic wealth, and incorporates important elements that were identified in previous studies of ASB in schools, including social connections and education. Bourdieu (1986) defined capital as *'accumulated labour*', which enables private owners to allocate social energy into materialised or embodied forms, that is, socially valued resources that could be used by those who have it to produce profits and gain power. Capital serves to maintain or improve social position through mechanisms set by each specific structured arena of social action, or field (Wacquant 1998). Bourdieu (1987) argued that the distribution of capital is what defined the social space, and therefore, accounted for the differences observed in any given particular universe since those properties were "*capable of conferring strength, power and consequently profit on their holder*". This attribute also makes Bourdieu's perspective relevant for this research, as it contemplates that capital might have different values and properties according to the characteristics of different contexts (i.e. schools).

Calhoun, LiPuma, and Postone (1993) noted that Bourdieu's notion of capital can be used to explain individual and social problems, including inequality and the reproduction of class differences, because societies are organised around the distribution of power, and the capital accumulated by individuals determine to some extent their life chances. For Bourdieu (1986), Economic Theory has been restricted to the materialisation of economic assets, yet, he argued that some practices '*are not and cannot be socially recognised as economic*' (47) because some actors do not want to convert them into money, and thus, it was not possible to explain the social world without using capital in all its different forms. He introduced three fundamental forms of capital: economic, cultural, and social capital. Bourdieu (1986) referred to Economic capital as those resources that can be *'immediately and directly convertible into money and institutionalised in the form of property rights'* (47). In his view, the meaning of economic capital went beyond income distribution and wealth accumulation, and therefore, it seems appropriate in the context of this research, as it contemplates other resources that could reflect the economic situation of students and their schools. Indeed, because students do not receive an income and most of the school economic capital that could affect them exist in materialised forms, the measures of economic capital can be calculated using the assets in their household and the resources and infrastructure of their school.

In Bourdieu's (1986, 51) terms social capital represented all those resources connected to social networks or membership to a group, *'which provides each of its members with the backing of the collectivity-owned capital'*. Although this notion of social capital introduced by Bourdieu goes in line with the purpose of this research because it allows the inclusion of different elements linked to social connections in the school context, it is important to note that Bourdieu is not the only one that has used this concept. More than a century ago Hanifan (1916, 130) introduced the idea of social capital in term of the benefits of social connections, where she defined it as '*goodwill, fellowship, mutual sympathy and social intercourse'* which made '*tangible*' things matter in the daily life of people. Other important scholars such as Coleman (1988) and Putnam (1995) have also used the term social capital to '*describe social obligations, ties or networks that create social cohesion and may promote economic development*' (Hodgson 2014, 1075). Indeed, the term social capital has become so popular among academics that it has been used to explain several social problems (Claridge 2004), thus, producing different interpretations that make it almost impossible to establish only

one single undisputed meaning (Dolfsma and Dannreuther 2003; Foley and Edwards 1997). Coleman (1990, 302) pointed out that social capital should not defined by its meaning but by its function, as *"it is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure*".

One important feature of Bourdieu's conceptualisation of social capital is the fact that other popular interpretations of social capital only have positive connotations restricted to long-term communal outcomes, including civic engagement (Putnam 1995) and trustworthiness and norms (Coleman 1988). In contrast, Bourdieu's instrumental treatment of the concept allowed a personal and intentional investment in this form of capital (Portes 2000), regardless of the outcome or expected benefit from it. In Bourdieu's (1986, 51) view, the profits of social capital are the result of investment in relationships that are usable in the short or long term, and because any of the forms of capital is used to also gain power, his conceptualisation of social capital allows the inclusion of negative activities, which are also relevant in for this research. For instance, several scholars have found that punitive and coercive measures are common practices among some teachers in Mexico in order to maintain discipline in their classroom, which, to some extent, could be consider a form of power. Additionally, some studies have shown that some students see their social connections with other peers as the only valuable network of trust, even if this might carry negative outcomes (Prieto Garcia 2005). Therefore, because Bourdieu's concept of social capital is not restricted to certain activities, both, positive and negative outcomes can be included in the models of this research. It is important to note that these elements are in line with other conceptualisations of social capital, as other authors have described informal values and norms (Fukuyama 1997) and even sanctions (Aldridge, Halpern, & Fitzpatrick, 2002) as key elements of social capital.

Finally, Bourdieu's concept of cultural capital is perhaps the most criticised from all the forms of capital, as his explanations are often considered vague and even contradictory (Kingston 2001), and because there is a lack of consensus about its conceptualisation, measurement, and the interpretation of empirical correlations (Jæger and Breen 2016). According to Bourdieu (1986), cultural capital is mainly linked to education and qualifications; it can exist in an embodied state (long-lasting dispositions of body and mind),

objectified state (cultural goods), and institutionalised state (educational qualifications). Thus, cultural capital focuses on those dispositions, knowledge, and values acquired or inherited from the different social groups (Bartee and Brown 2007). According to Bourdieu (1986), in its embodied state, is often called culture, and is linked to a process of cultivation that take time; and in the objectified state, the cultural goods can presuppose both, an economic and cultural value. In Bourdieu's perspective, cultural capital is transmitted mainly within and through the family, unlike social capital, which is also transmitted through other social groups (Goldthorpe 2007). Kingston (2001) stated that culture also involves the acquisition of knowledge (i.e. doing homework), and presence of things like books and computers at home, as this might stimulate the development of literacy. Additionally, van de Werfhorst and Hofstede (2007) pointed out that the level of education of parents could be included in cultural capital, as it could be seen as an institutionalised form of cultural capital. This means that the addition to this concept to the ones of economic and social capital, allows the incorporation of important elements highlighted in the literature review, such as expectations of education, and family support in relation to school activities.

Similar to the other forms of capital, Bourdieu considered that culture was not only socially valued, but also served as a mechanism to obtain other social benefits, including power (Goldthorpe 2007; Navarro 2006). In this sense, Bourdieu (1986, 48) noted that although some other scholars have contemplated this concept, it has often being connected to the economic profit as a result of educational investment, '*ignoring the contribution which the educational system makes to the reproduction of the social structure*'. Therefore, this conceptualisation of cultural capital seems relevant for this research as it would not exclude some students who, as noted in chapter 2, do not see education in the traditional way, that is, as a mechanism to improve their life and obtain social recognition. This concept also helps to avoid false assumptions about the nature of cultural capital (just in favour of social elites), as according to Goldthorpe (2007) Bourdieu did not contemplate the '*superiority*' of any social class. For Bourdieu, symbolic systems and culture determine, to a large extent, our perception of reality, guiding human interaction, and producing and preserving social structures and classes, which means that the effects of cultural capital might vary according to the specific context of each individual. Therefore, his ideas seem more appropriate for this

research than other definitions that often exclude some social groups of possessing any form of this capital (e.g. Lamont and Lareau (1988)).

As mentioned before, perhaps one of the major challenges faced by researchers while using Bourdieu's work is the fact that at first sight it may look ambiguous and vague; therefore, it has been interpreted in many different ways according to the point of view of who is using them. However, Reed-Danahay (2005) pointed out that Bourdieu himself was aware of this situation, so in order to balance the subjectivity and objectivity of research, he always supported the use of a '*reflexive sociology*' in which researchers should always reflect on their own position and on that of other agents. In the same way, Bourdieu advocated for an '*epistemologically disciplined eclecticism*'[10] (Wacquant 2014) and like many other social scientists, he promoted the integration of research, especially around the *'material'* and '*symbolic*'[11] dimensions, arguing that this division often leads to fallacies that cause a division among scientists and fields (Lebaron 2006). Even though his work has been criticised due to the subjectivity and complexity of his concepts, Wacquant (2014) noted that researches should not be restricted by this situation, and Bourdieu's notions should be used in accordance to the nature of the study. Therefore, Bourdieu's forms of capital will be used in this study as they provide a framework that can be useful for the operationalisation of this research. The conceptualisation of capital beyond economic wealth (and income) and the addition of the concepts of social and cultural capital will be extremely useful for in the quantitative analysis because they allow the incorporation of many important aspects identified the literature about ASB in schools and respect the multidimensional nature of wellbeing.

4.3.3 The use of capital and inequality measures

The different use of theories and methods have produced research with very different results, and some debates have emerged in relation to elements and factors that might explain the link between capital, inequality and levels of crime and ASB. For instance, several

[10] Eclectic defined as a way of thinking which uses ideas or doctrines from a range of sources (schools of thought) (OED 2016c).
[11] Anthias (2001) defined material value as that given to resources that serve to the reproduction of human life and as central form of exchange. Thus, symbolic value is that given to resources that have surpassed the level of necessity, so they no longer have only a material value but also assume a human and social worth.

important scholars have suggested that some elements linked to poverty and deprivation are among the best predictors of crime and ASB (Sampson, Morenoff, and Gannon-Rowley 2002; Obberwittler 2005, 2007; Sampson 2009; Weatherburn and Lind 2001; Wikstrom and Loeber 2000), while others believe that inequality is a better predictor of these problems (Wilkinson and Pickett 2010; Piketty 2014). Although both positions have indeed indicated important aspects that must be taken into consideration in the evaluation of the effects of capital and inequality, two main issues could explain, to some extent, these differences in research: model misspecifications in which poverty and inequality are never analysed together (Pridemore 2011), and the lack of appropriate measures of these two variables. Therefore, because one of the main aims of this research is the analysis of the effects of poverty or deprivation over and above inequality, this section will focus on some theoretical and methodological aspects of these issues that will help to untangle this complex relationship and which will be used in the models of the perceived frequency of ASB in Mexican schools.

After an extensive literature review, Pridemore (2011) pointed out that some differences in the outcomes of studies that have analysed the link between poverty and inequality with crime (he used homicide studies) can be attributed to models that have not analysed the correct relationship nor used the right variables. For instance, Sampson, Morenoff, and Gannon-Rowley (2002) found that some elements of what they called '*socio-ecological differentiation*', were commonly cited by important criminology scholars as predictors of crime and ASB (mainly in studies carried out in the USA), including the increase in concentration of poverty, the clustering of various social problems in certain neighbourhoods, and the disadvantage of ethnic minorities. They found that some predictors of negative outcomes on children and adolescents included poverty, racial isolation, single parents, and the lack of home ownership. Nonetheless, as suggested by Pridemore (2011), the vast majority of these studies that found a link between poverty and ASB did not include any control for inequality.

In contrast, other scholars (mainly outside the USA) have also pointed out that deprivation by itself does not cause crime, and the correlation between poverty and offending is not universal (Bottoms 2012). Probably the most extensive literature about the relationship between inequality and crime has been at transnational level, where scholars such as

Wilkinson and Pickett (2010) noted the importance of moving away from the exclusive analysis of poverty and its implications, suggesting that many issues arise as a consequence of the disparities that exist within nations. In a comprehensive analysis of the effects of economic inequality around the world, they found that those countries with higher inequality levels (in economic terms) had also higher levels of several social problems, including crime. They argued that this situation could be explained by the fact that inequality refers mainly to how people compare to others within the same society, so in unequal countries wealth disparities are overlaid by cultural differences, which form classes and divide societies. In this sense, Wacquant (1998, 35) noted that some public policies and institutions in the United States only "*serve to further isolate, stigmatise and exclude them*", and therefore, crime is just one of the consequences of a dysfunctional system that segregates people according to their social class. Similarly, Obberwittler (2007) noted that the effects of concentrated poverty on adolescents are stronger in the USA probably because of its higher level of inequality, a situation that could also explain the differences in the results between the studies carried out in the USA and those developed in other regions in the world. However, and similar to those studies that have explored the link between poverty and crime, inequality studies usually do not include any control for poverty, and thus, they might only show partial results.

Therefore, Pridemore (2011) suggested that in order to understand the effects of poverty and inequalities, it is necessary to include in the analysis appropriate measures of poverty and inequality together, stressing that some variables could not effectively denote these issues. This raises the second consideration about the models of this research: the use of measures of capital and inequality that capture on the one hand some multidimensional aspects of wellbeing (in this case, the forms of capital), and on the other, focus on all social groups and not only on those who are below a poverty threshold. As mentioned before, the measurement of poverty and inequality has been restricted to economic capital and unidimensional income thresholds, that is, the construction of welfare lines in monetary terms. More than a century ago, Lorenz (1905) noted that the problem of poverty studies was that they cannot tell '*whether there has been a concentration or diffusion of wealth'* (210) especially at the top of the distribution, restricting the information about the income shared by the richest people, which he believed constituted the largest proportion of the total

income. Thus, Lorenz (1905) proposed a graphic representations of the distribution of all income in a determined society[12], which was used few years later by Corrado Gini to introduce a measure of variability that he defined as '*the mean difference from all observed quantities*' (Ceriani and Verme 2012)[13]. Since its publication, the GINI index has been the most popular measure of income inequality, helping policymakers in the understanding of many social phenomena. Nonetheless, this measure has also been criticised especially due to the emphasis in middle earners (Greselin and Zitikis 2018), its sensitiveness to outliers (Prendergast and Staudte 2017), and the fact that is not additively decomposable (Maasoumi 1999).

What is more, Atkinson (1970) pointed out the necessity to define measures of the degree of sensitivity to transfers at different income levels because inequality measures that are dependent of the mean income are also invariant to proportional shifts. Although these measures would be extremely useful in this research as they focus on different parts of the distribution, and thus, tell us more about the nature of inequality (e.g. due to very wealthy or poor people), they have been criticised too, especially because income does not capture all dimensions of wellbeing. Therefore, many scholars have advocated for the inclusion of other dimensions in the measurement of inequality (Kolm 1977; Atkinson and Bourguignon 1982; Maasoumi 1986, 1999; Sen 1995; Tsui 1995, 1999). Probably one reasons why income is still used as a proxy of welfare and inequality is the fact that multidimensional measures are very complex. This study will focus on measures of capital that include monetary and non-monetary attributes and that take into account these dimensions for two reasons. The first one is that it helps to investigate capital and inequality beyond income and economic factors (i.e. using the other forms of capital); the second reason is that it fits better with the

[12] The Lorenz curve (Lorenz 1905) shows the cumulated percent of the population (from poorest to richest) measured along the horizontal axis and the logarithms of the cumulated amounts of wealth along the vertical axis. A population in which wealth is distributed equally will give a straight line where the curve coincides with 45 degrees ray through origin. In contrast, unequal distributions will produce a curve that '*starts and end in the same points as with an equal distribution, but they will bent in the middle*' (Lorenz 1905, 217), so inequality is greater as the curve diverges from the 45 degree ray.

[13] Mathematically, the GINI coefficient can be defined as the ratio of the area that lies between a line of perfect equality and the Lorenz Curve over the total area under the line of equality, or the difference between the lines of the equality and the actual line produced by people's income. One of the biggest advantages of this index is its easy interpretation as it ranges between 0 and 1; where 0 expresses perfect equality, and a value of 1 represents complete inequality, that is, a situation where only one person has all the income and the rest of the population nothing.

nature of Mexico and Mexican schools, mainly because the high levels of informality, lack of statistics, and because students do not perceive any income.

Multidimensional measures of capital and inequality

Multidimensional measures of capital and inequality entail some complexities derived from the use of several variables and indicators in larger sets, including the decision of the dimensions of wellbeing to be included, the methods to aggregate these dimensions, and the use weights for all the different attributes. In this sense, Kaplow (2005) pointed out that the use of any measure should depend on the researcher's reasons for measuring it and the theoretical and empirical facts about the context. Thus, for the purpose of this thesis, the selection of the specific domains and indicators will be based on the economic, social, and cultural capital of the students and their schools, as these were the most relevant elements highlighted in the literature review (see chapter 3). Although different approaches have been developed for the aggregation of data in multidimensional measures of capital and inequality, even recent developments in the field lack a unanimous support. Yet, in order to justify the decisions made in this thesis and following once again Kaplow (2005) idea that any measure should fit the purpose of each research, the main approaches of multidimensional capital and inequality measures will be briefly discussed.

In relation to the calculation of capital measures, the first approach is the aggregation of individuals for each single attribute, which has been widely used by academics for the development of popular indexes such as the Human Development Index. Although the calculation of measures of inequality based on this approach satisfy most of the axioms proposed for income inequality measures[14], it generates an index that ignores the impact of the association between attributes. The second approach involves the aggregation of attributes for each individual, which will be the approach taken in this study because it will allow the comparison between individuals and schools. Probably the main limitation of inequality measures calculated using this approach is that they do not satisfy all the axioms

[14] Shorrocks (1980) proposed the following axioms for inequality measures: Axiom 1. Symmetry: the fact that only the attribute that is being analysed matters. Axiom 2. Transferability: a decrease in inequality due to transfers from the top to the bottom of the distribution. Axiom 3. Continuity: a change in the value of an individual will produce a proportional change in the inequality measure. Axiom 4. Mean independence: the index does not change when all incomes are multiplied by a positive scalar. Axiom 5. Additively decomposable: total inequality '*can be expressed as the sum of a within-group inequality and a between-group term'* (614).

established for the unidimensional context, due to '*the lack of consensus with regards to the appropriate cardinalization of the class of admissible welfare function*' (Maasoumi 1999, 3). For instance, those measures based on dichotomous or categorical variables do not satisfy the Pigou-Dalton principle of transfers[15], as this principle is based on traditional income indices that analyse welfare in terms of '*underlying continuous variables across people*' (Aaberge and Brandolini 2014, 30).

Similarly, the calculation of multidimensional measures of inequality has been dominated by two approaches. The first is the one-step approach developed by Tsui (1995), in which the attributes are implicitly incorporated in the inequality measure; and the second approach is the two-step introduced by Maasoumi (1986), where the aggregation is done first at the individual level and then applying a univariate index. According to Lugo (2005), the main criticism to Tsui's index is the lack of parameters in the formula, which makes hard to analyse and disentangle important elements such as weights, substitution between attributes, and inequality aversion. Therefore, this approach would not allow the examination of important elements of this thesis such as the effect of each of the forms of capital and the role of individual and school level variables. On the other hand, because the second approach involves first the aggregation of attributes for each individual and then the calculation of a measure of inequality across individuals, it allows the analysis of the robustness of inferences (i.e. levels of aggregation and weighting factors). This approach will be used in this research as it suggests the construction of measures aggregating first the elements and attributes of each student and school in one function of utility, to then measure the dispersion of this function using a unidimensional inequality index, and thus, satisfying all the axioms of inequality measures. What is more, Maasoumi (1986) proposed the calculation of inequality based on Generalised Entropy (GE), which considers a parameter that allows the analysis of the effects of inequality at different parts of the distribution (more information in chapter 6). Additionally, it will allow the calculation of both, capital and inequality measures, which as pointed out by Pridemore (2011) should be included in the final model to analyse the effect of deprivation over and above inequality.

[15] The Pigou-Dalton principle of transfers states that inequality falls if income is transferred from the richer to the poorer (Aaberge and Brandolini 2014).

In relation to the aggregation of the attributes for each student, the weights given to each dimension determine the extent to which different variables contribute to each of the forms of capital, affecting the results of both capital and inequality measures, as weight changes from one dimension to another may influence the results. One of the most common approaches, and probably the simplest one, has been to treat all dimensions equally, especially when there is not enough information about the importance of each one of the attributes. Yet, this approach is not appropriate for this research mainly because it arbitrarily implies that all the variables or elements link to each one of the forms of capital are equally important. Other scholars have taken an approach in which weighting is decided based on statistical criteria, including assigning higher weights to deprivations affecting smaller groups, market prices, and individual preferences. However, these approaches have also been criticised due to issues such as imbalances in the structures of weights and inappropriate conceptions of welfare. Therefore, the best approach (which will be used in this study) is the use of statistical dimensionality reduction techniques such as principal components analysis, factor analysis, and Structural Equation Modelling (SEM). Aaberge and Brandolini (2014, 23) pointed out that these methods are the most accurate option to deal with weights as they '*collapse multiple indicators into indices of total or domain-specific deprivation, allowing the estimation of the implicit value of the weights and preserving individuality*'. Furthermore, the use of factor analysis and SEM seems particularly appropriate in this analysis, as it allows the measurement of unobserved variables (also defined as latent constructs), in terms of the observed variables, making possible the calculation of theoretical concepts without the use of proxies (more information will be provided in chapter 6).

As described in this section, for the analysis of the relationship between the forms of capital, their inequality, and the perceived frequency of ASB in the school context, it is necessary to take into consideration some methodological elements, as many scholars in the past have not been able to fully address this relationship due to model misspecifications (Pridemore 2011). First, it was shown that many analyses have focused only on one of these problems, and although they have been able to identify important issues connected to either poverty or inequality, there has been an automatic assumption about their effect on ASB despite being only a partial picture of the problem. Similarly, the use measures of poverty and inequality only based on income has produced research where other important aspects of

the human life are ignored even though they are essential for the understanding of the wellbeing. What is more, although many scholars have begun to recognise the multidimensional nature of wellbeing, there is still a lack of a well-defined framework about what aspects of the human life are important and how to measure them in a composite index. Therefore, the quantitative models of this study will consider three essential elements. The first element is the use of measures for each forms of capital and their respective inequality together in order to establish the effects of deprivation over and above inequality. The second element is the calculation of these measures using a multidimensional approach, where the attributes of each individual are incorporated into measures of economic, social, and cultural capital, to then calculate its dispersion using a univariate inequality measure. Lastly, these measures will be based on SEM and Generalised Entropy, which will solve some of the main methodological problems, including the calculation of elements that cannot be directly measured such as social and cultural capital, the use of weights, and the analysis of inequality at different parts of the distribution.

4.4 Conclusions

As presented in this chapter, research on poverty and inequality has been dominated by temporal and context specific ideas that have limited our understanding about their effects. Thus, the approach that scholars take to examine these issues varies according to their understanding and stance of the theoretical concepts, which in turn are influenced by their own personal experiences and their environment. Even though in recent years scholars have begun to recognise the importance of more inclusive approaches using different ideas and elements, the lack of a consistent framework to examine poverty and inequality makes it extremely hard to establish conclusions about their effect on other social problems, including ASB. What is more, the misuse of some of these concepts and their measures has caused partial and misleading results, affecting not only our understanding about the social world, but also generating other problems, including the stigmatisation of some vulnerable groups and the creation of ineffective policies. Therefore, this chapter provided a theoretical framework for the analysis of the relationship between capital, inequality, and the perceived frequency of ASB in schools, presenting first a clear definition of the concepts linked to the

dependent and independent variables, followed by a discussion of three theoretical perspectives that could be used in order to explain the link between these variables.

In relation to the definitions of the dependent variable, it was stated that in this study, it would not be possible to explore crime in the school context, as there is a lack of a consistent framework that regulates juvenile delinquency in Mexico, and thus, the data available is scarce. Therefore, this research will explore the perception of ASB, which refers to the violation of social norms and includes many of the issues highlighted in the literature review. With respect to poverty and inequality, it was shown that different interpretations and operationalisations of these concepts have carried some difficulties, where most poverty measures have been based on arbitrary income thresholds and the measurement of inequality is very much reliant on mid-earners. In both situations, '*traditional measures*' have produced a partial analysis of wellbeing, focusing mainly on income deprivation, overlooking other aspects of the quality of life, and those individuals and social groups that do not fall into specific categories. Therefore, it was suggested the use of the term *'capital'* instead of poverty, as these concept allows the analysis of all the students and schools (and not only those who are considered vulnerable or poor) and makes possible the inclusion of other non-economic elements linked to ASB in chapter 3.

In order to fill some of the gaps in the literature about ASB in the school context, this chapter also discussed three theoretical perspectives that can be used for the construction of a more inclusive framework for the analysis of the relationship between capital, inequality, and the perceived frequency of ASB. These perspectives include some aspects of the Ecological System Theory, which support the incorporation of student and school level variables; the forms of capital of Bourdieu, where social and cultural capital are contemplated in addition to economic capital, making possible the construction of multidimensional measures of wellbeing; and other aspects of the use measures of capital and inequality. Although there are some criticisms about the use of these theories, they provide important elements that can be used for the operationalisation of this research. Therefore, a pragmatic stance will be taken throughout the rest of this study, where the purpose will not be to test these theories, but to integrate different aspects of them to establish a model that addresses the main research questions of this study. Consequently, this study will not be based on assumptions about the nature of ASB, capital, inequality, or any other characteristic of particular groups

and environments. On the contrary, the theories and approaches presented here will be employed to construct and interpret the different measures of the quantitative model, which will have the purpose of analysing students from all background in order to analyse how differences in all the forms of capital affect the levels of perceived frequency of ASB in their schools.

In this sense, the concepts and theories presented for this research support the construction of a multilevel model of the perceived frequency of ASB in schools that incorporates student and school level variables of economic, social, and cultural capital, and their respective inequalities (and if possible other variables at macro level). It was concluded that this model must include measures of both, capital and its inequality together in order to analyse the effects of poverty or deprivation over and above inequality. The measures of economic, social, and cultural capital will be calculated using Structural Equation Modelling, in order to incorporate different variables of each of the forms of capital, respecting the multidimensionality of these measures, and avoiding any assumption about the importance of all the measures (weights). Lastly, the measures of inequality should be based on these capital measures, and will be calculated using Generalised Entropy, so it will be possible to examine the effects of the distance of these measures at different parts of the distribution. Thus, the following chapters will focus on the operationalisation of all these elements, describing first in chapter 5 the data, followed by a more in depth discussion of the methods in chapter 6, and the construction and analysis of the dependent and independent variables in chapters 7 and 8, respectively.

Chapter 5: Research design and data

5.1 Introduction

As explored in chapters 3 and 4, in order to untangle the link between capital, inequality, and the perceived frequency of ASB in schools, it is necessary to address some theoretical and methodological issues, most of which have been overlooked by many scholars in the past. These include, among others, the use of a multidimensional approach that contemplates different elements of the quality of life of individuals (for the purpose of this research the forms of capital of Bourdieu (1986)), the analysis of student and school level variables, and the calculation of measures of capital and inequality with specific characteristics. Therefore, an appropriate instrument that allows the inclusion of all these elements is necessary, as the lack of any of them would yield inconclusive and partial results, and thus, limiting the contribution of this research. What is more, before proceeding with any further analysis, it is essential to explore ways to operationalise this research in order to identify any possible limitation or other consideration that could affect the outcomes of this study. It is in this sense that the aim of this chapter is to define and describe the best instrument available to carry out this study, as well as discussing the research design that will allow the operationalisation of the theoretical and methodological elements highlighted before, all of which will help to fill the gaps identified in the literature.

This chapter is divided into 6 different sections. Based on the literature review presented in chapter 3 and the theoretical and methodological perspectives discussed in chapter 4, the first section of this chapter will present the aims and research questions of this thesis. The second section will discuss in more detail the decision of using secondary data analysis, to then continue in the third section with a briefly description of some alternative datasets that could have been used in this study. Section 4 will introduce some important aspects about the data that was used in this study, including information about its collection and sampling. Section 5 will present an exploration of the variables that will be used in the quantitative analysis of this research, which will include a discussion about the operationalisation of the dependent and independent variables, that is, the variables that will be used for the creation of the measures of the perceived frequency of ASB, and capital and inequality, respectively. Lastly, in section 6 some ethical considerations and limitations of the data will be presented.

After the analysis of the instruments available that could have been used for the purpose of this research, the National Plan for the Evaluation of Learning or PLANEA (INEE 2016) was selected to continue with this study. This decision of using secondary data analysis was mainly based on the fact that this dataset already contained all the information necessary for the operationalisation of the analytical concepts, and also because their data is larger and of better quality than it could have been collected by any other single researcher (Donnellan and Lucas 2013). What is more, PLANEA was chosen because it was best dataset available, as it included all the elements for the construction of the measures of capital, inequality, and the perceived frequency of ASB, and its sample allowed estimations for different types of schools and localities of different sizes.

5.2 Thesis aims and research questions

The analysis of the existing literature about the effects of the poverty or deprivation and inequality on ASB in the school context showed that many studies have produced partial or inconclusive results, and thus, some gaps must be filled in order to untangle this complex relationship. More specifically, the discussion in chapter 2 showed that the elements that should be incorporated in further analyses of the relationship between capital, inequality, and the perceived frequency of ASB in schools are:

1. The use of variables that allow the analysis of the economic resources of all students and schools, not only those who are considered *'poor'*.
2. The use of measures of inequality in which differences within schools (or between students) can be assessed.
3. The use of other factors beyond economic resources, especially those linked to social connections and education.
4. The incorporation of student and school level variables in the same analysis (using multilevel models).
5. The use of other contextual factors and the analysis of subpopulations.

Hence, in order to address these elements, in chapter 4 it was concluded that this thesis will contemplate some theoretical and methodological considerations, including:

1. The use of the term '*capital*', in order to explore all social groups (not only the *'poor'*) and to incorporate other non-economic elements.
2. The use of a comprehensive approach using some elements of the Ecological Systems Theory of Bronfenbrenner (1979; 1994), which supports the use of student and school level variables, as well as others at the macro level (i.e. type of school and size of the locality).
3. The use of Bourdieu's (1986) forms of capital to address the multidimensionality of wellbeing and to incorporate some elements linked to ASB in schools, which were identified in the literature review.
4. The use of capital and inequality measures together in order to assess the effects of deprivation and inequality (Pridemore 2011).
5. The construction of measures of capital using Structural Equation Modelling (SEM), which estimates unobserved variables in terms of the observed variables, thus, avoiding the use of proxies and preserving the individuality of all the variables.
6. The construction of inequality measures based on Generalised Entropy (GE), which will make possible the analysis of the effects of inequalities at different parts of the distribution.

Hence, the main aim of this research is to analyse the *relationship* between *economic, socia*l and *cultural capital*, their *inequality,* and the levels of perceived frequency of *antisocial behaviour* and disorder in schools in Mexico. In order to achieve this purpose and fill some of the gaps of the existing literature, this thesis will address the following research questions:

1. How are the economic, social, and cultural capital and their associated inequalities related to the perceived frequency of antisocial behaviour in schools in Mexico?
2. Do individual and structural inequalities impact on the perceived frequency of antisocial behaviour over and above deprivation?
3. To what extent are inequalities *within* and *between* schools linked to the perceived frequency of antisocial behaviour in the school environment?
4. How are inequalities at different parts of the distribution associated with the perceived frequency of antisocial behaviour in schools?

By answering these questions, it will be possible to understand the relationship between the different forms of capital, their inequality, and the perceived frequency ASB in Mexican schools. However, this research will also address other important issues that can reveal important elements about the school context in Mexico. The first one will be the identification of some of the main antisocial behaviours that exist in the schools of Mexico, as well as their variation not only between schools but also across different regions. Similarly, this study will be able to find some important problems that exist in Mexican schools, in relation to the availability of economic, social, and cultural capital. Lastly, this research will show some of the main inequalities in economic, social and cultural capital that exist between students (i.e. individual differences) and schools (i.e. disparities that exist between institutions) in Mexico. All these elements will provide important information that will be used in the last chapter of this thesis to reflect on the implications of inequalities in the school context and possible policy interventions that might help to reduce their impact, as well as addressing the levels of perceived ASB and disorder that exist in Mexican schools.

5.3 Secondary data analysis

The term '*secondary analysis*' refers to the '*analysis of existing data collected by others*' (Donnellan and Lucas 2013:1), and it is usually employed as a tool to gather information from surveys on topics other than those originally designed (Hyman 1972). It has become an extremely popular alternative to primary empirical research (i.e. where data is gathered directly by the researcher), especially because many surveys now contain information that allow academics not only to analyse their own ideas, but also to test theories by replicating existing research (Burton 2000). As noted by Donnellan and Lucas (2013), probably the main advantage of secondary research is the fact that the data has already been collected, and in most cases is ready to use; hence, researchers do not have to deal with the practical and methodological problems of data collection (Burton 2000). The use of national surveys is also helpful to cover large amounts of information (Vartanian 2010), while reaching subpopulations that otherwise would be inaccessible (Burton 2000). Secondary analysis also saves time and money (Burton 2000; Donnellan and Lucas 2013; Vartanian 2010), and in large-scale surveys the data is usually of high quality as it is designed and collected by experienced personnel (Vartanian 2010). This type of analysis also encourages transparency

on research because other people have access to the information, so studies can easily be replicated by others (Donnellan and Lucas 2013).

This approach seemed the most appropriate for the development of this research for many reasons. The first one is the fact that the collection of data would have been extremely time consuming, and due to the lack of economic resources and safety issues, it would not have been possible to gather information in some places (especially in isolated communities and places with high crime rates). What is more, without using a survey like PLANEA this study would not be able to make estimations at the national level, and indeed for some subpopulations (i.e. environmental elements such as type of school and size of locality), as the sample size would not had been big enough. Both of these elements are important for this research because as highlighted in chapter 3, there are some important differences in the levels of ASB between schools of urban and rural areas, and between public and private schools. Additionally, as pointed out in chapter 2, the degree of marginalisation and crime rates vary enormously from region to region, and therefore, it would not be possible to make assumptions about the impact of deprivation or inequality that could apply to the entire Mexican context. It is important to mention that many national surveys are underused by researchers in Mexico, and as noted before, despite having been designed for other purposes (in the case of PLANEA for the evaluation of the educational system), large-scale surveys can be used to explore other important concepts and test them against empirical realities (Donnellan and Lucas 2013). Therefore, although it is necessary to adjust some theoretical concepts because these instruments were not designed for the purpose of this research, as it will be shown in the following section, some surveys contain the information necessary to test all the research questions of this study.

5.4 Comparing PLANEA to other datasets

The National Plan for the Evaluation of Learning (PLANEA) was chosen for this research because it was the most appropriate tool for the analysis of the relationship between antisocial behaviour and different forms of capital in the school context. The main objective of PLANEA was the examination and evaluation of educational achievements such as maths, language, and communications knowledge and skills (INEE 2016). However, PLANEA also contains two contextual questionnaires that can be used to operationalise the theoretical

concepts of this study. As mentioned before, its large sample size and design, allows estimations at the national level, and for some subpopulations including the different types of schools, and localities of different size (more details about the survey and its operationalisation for the purpose of this study in the following sections). The decision of using PLANEA was taken after reviewing several databases where it was found that other surveys lacked some variables to appropriately assess the core elements of this research, or they could not be used to estimate results at different levels of analysis or for groups identified as important in the literature review. The other alternative instruments are listed below, with the purpose of highlighting the elements that were taken into account to make the decision of using PLANEA.

Programme for International Student Assessment: The Programme for International Student Assessment, or PISA (OECD 2015b), is an international evaluation of the education systems of 72 countries. It was administered to 7,568 students in 275 schools in Mexico. The data does not contain any information to make estimations for any subpopulation, as it did not contemplate sub-regional divisions and the school classification does not match the official definition of type of schools in Mexico. Additionally, it does not include variables that measure any type of antisocial behaviour.

National Survey of Exclusion, Intolerance, and Violence in Public High Schools: The National Survey of Exclusion, Intolerance, and Violence in Public High Schools (SEP 2013a), was a survey that was administered only once to 1,479 students from 150 schools. Its purpose was to gather information about practices of violence in schools in Mexico. Its information could not be used to make any estimation for subpopulations. Furthermore, it only contains variables at the individual level, so it was not possible to assess the impact of school capital on antisocial behaviour.

National Youth Survey: The National Youth Survey (IMJUVE 2011), was a national survey that had the purpose of describing the main socioeconomic aspects of young people in Mexico. Its last version (2010) consisted of 29,787 respondents aged between 12 and 29. Despite being relevant and in line with the analytical concepts of this research, the biggest challenge was linked to the way in which the data was presented. The main level of analysis

is the state, and although it was designed to include information at the smallest level possible (AGEB, or Basic Geographical Area)[16], not all the respondents had a value for this variable. It also contained many missing cases in many other variables, and it was not possible to classify young people according to their school.

National Survey of Social Cohesion for the Prevention of Violence and Crime:

The National Survey of Social Cohesion for the Prevention of Violence and Crime (INEGI 2015a), was a yearly national survey which intended to measure risk factors and exposure to violence and crime among young people in the country. Its latest version (2015) consisted of 97,754 respondents of 47 cities in Mexico. It had information at the individual and household level and contained variables that could have been used for the creation of antisocial behaviour and the three different forms of capital. However, it included information only from urban areas, and it was not possible to link the information to schools.

5.5 Data: National Plan for the Evaluation of Learnings (PLANEA)

The National Plan for the Evaluation of Learnings (PLANEA) was chosen as the instrument to operationalise this research as it contained all the necessary elements for this study. Additionally, as it will be described in this section, its design allowed estimations not only at the national level, but also for some important subpopulations, and thus, making possible the establishment of conclusions in different contexts. PLANEA was developed in a joint effort between the Secretariat of Education (SEP) and the National Institute for the Evaluation of the Education (INEE) to substitute all the previous official assessments of the educational system in Mexico, focusing on keeping the main strengths of their predecessors while overcoming major methodological issues throughout their design, construction, and implementation phases (INEE 2016). Besides the analytical tools that assessed specific educational achievements, PLANEA included two contextual questionnaires administered to students and principals of each school, which can be helpful in the analysis of other processes in the school context. According to INEE (2016), one of the main objectives of

[16] The Basic Geographical Area or AGEB, is a subdivision of each municipality in the country into different geographical areas for statistical purposes. It is estimated using Latent Class Analysis (LCA) based on the distribution of geographical and physical characteristics (CONEVAL 2017).

PLANEA was informing society about the state of education in Mexico, providing authorities with relevant information to improve the quality of schools, and contributing to the development and improvement of the educational system in Mexico. Thus, the outcomes of this research will be in line with the objectives of the PLANEA, as they will provide relevant information about the economic, social, and cultural capital of students and schools, which could be used for the design of public policies to tackle inequalities and other problems that might affect the school experience, including ASB. Although the survey was administered to students in the final year of their primary and secondary education (grade 6 and 9), for the purpose of this research only the responses of grade 9 students will be used, which corresponds to young people aged between 14 and 15. This decision was taken because as shown in chapters 2 and 3, students of secondary schools are in a more vulnerable situation as they have higher dropout rates (Blasco 2003) and a higher percentage of young offenders falls within the age group corresponding to these level of education (INEGI 2016).

Sample size

As a reference, table 5.1 displays the number of grade 9 students and secondary schools in Mexico according to the classification used by the Secretariat of Education. The first thing that can be noted is that around 91 percent of grade 9 students attended Public schools, and only 8.43 studied in a Private school. For both categories, General Service was the most common type of school, especially for Private schools, where the other types represented less than 1 percent of the total number[17]. It is important to note that PLANEA does not include data for schools for workers, which account for less than 0.05 percent of the total number of both, secondary school students and schools. 6.56 percent of Secondary schools in Mexico were Community schools, which were attended by only 0.52 percent of the total number of grade 9 students. This type of school is designed for indigenous students who speak a native language[18] and live in small and remote communities. Similarly, TV schools, which are a type of distance learning school located in remote communities, accounted for

[17] As mentioned in chapter 2, the official classification of Secondary schools in Mexico includes the categories listed in table 5.1, and the service can be provided with public or private funding (INEE 2016; DOF 2016a).
[18] In Mexico, more than 7 million people have an indigenous language as a mother tongue (CONAPO 2016). The Mexican Government recognises 68 indigenous languages with official status (along with Spanish), and more than 364 linguistic variants (DOF 2008).

almost half of the secondary schools in the country and have around 20.82 percent of the total number of grade 9 students.

Table 5.1: Grade 9 students and secondary schools in Mexico.

Type of school	Funding							
	Grade 9 students in Mexico				Schools in Mexico with grade 9 students			
	Public		Private		Public		Private	
	Total	%	Total	%	Total	%	Total	%
Community	10,111	0.52	0	0	2,433	6.59	0	0
General	831,549	42.72	152,434	7.83	7,145	19.34	4,220	11.42
Migrant	139	0.01	0	0	24	0.06	0	0
Technical	526,353	27.04	11,034	0.57	4,319	11.69	272	0.74
TV school	405,173	20.82	611	0.03	18,243	49.39	16	0.04
For workers [19]	*8,867*	*0.046*	*65*	*0*	*262*	*0.071*	*3*	*0.01*
Total	1,782,192	91.15	164,144	8.43	32,426	87.14	4,511	12.21

Source: INEE, 2016.

PLANEA was administered in June 2015 to 144,517 grade 9 students and 3,228 principals in 3,529 secondary schools throughout Mexico (INEE 2016). As shown in table 5.1, according to official statistics in 2015 there were around 1.94 million grade 9 pupils attending over 36,000 secondary schools in the country (INEE 2016). Thus, the survey represents approximately 7.4 percent of the total number of grade 9 students and 9.6 percent of the secondary schools in Mexico. The gender of the students was almost equally distributed, 49.4 percent of respondents were males and the remaining 50.6 females, a figure similar to the real population of the country, where official statistics show that in that year, 50.8 percent of people aged 15 (age that correspond to these school grade) were males, and 49.1 females (CONAPO 2015). The majority of the students had an age that corresponded to the one they should have at the end of their secondary education, with 62.9 percent of respondents being 15 years old, followed by 28.2 percent who were 14 or younger, and only 8.6 percent of the sample were older than 16.

[19] Not included in PLANEA.

Sample design

The INEE (2016) selected four variables to split the sampling frame of PLANEA: type of funding (public or private), service (community, general, migrant, technical, TV school, and for workers), state, and size of the locality. Table 5.2 displays the sample size according to the type of school, where it can be noted that type of funding and service were merged into one category (i.e. type of school). For the purpose of this research, Public General Schools will be referred just as '*Public schools*' as this name is used in the survey. It can be noted that the share of students in the different types of schools does not match the real population, where there is an underrepresentation of most groups, with the exception of Private and Community schools. For example, in table 5.1 it can be observed that students in Public schools represent 42.72 percent of the total number of students in secondary schools in Mexico, yet, table 5.2 shows that they account only for 36.3 percent of the total in PLANEA. In contrast, private school students account for 14 percent of the respondents of PLANEA, despite representing 8.43 percent of the real population. Similarly, there are some differences between the proportion of schools in PLANEA (table 5.2) and in the real population (table 5.1), yet, they seem to be less marked than in the students' case. Although both proportions are different to the real population, as noted in the guiding document of PLANEA (INEE 2016), due to the large sample size and the design of the instrument, the data should be useful to make most estimations of the real population for all categories.

Table 5.2: Number of student responses by type of school.

Type of school	No. of Students	Percent	Schools	Percent
Public	52,464	36.3	809	22.9
Public Technical	34,882	24.1	540	15.3
TV Schools	35,553	24.6	1,484	42.1
Community school	985	0.7	224	6.3
Private	20,633	14.03	472	13.4
Total	144,517	100.0	3,529	100.0

Source: INEE, 2016.

Table 5.3: Population aged 15 and respondents of PLANEA by state.

State	Population aged 15	Proportion real pop. aged 15 in Mexico	Students surveyed	Proportion students in survey	Proportion survey/real pop. aged 15
Aguascalientes	25,260	1.2	4,312	3.0	17.1
Baja California	63,077	2.9	5,814	4.0	9.2
Baja California Sur	13,465	0.6	3,336	2.3	24.8
Campeche	16,130	0.7	3,431	2.4	21.3
Chiapas	114,168	5.3	2,605	1.8	2.3
Chihuahua	67,917	3.2	4,379	3.0	6.4
Coahuila	54,848	2.5	5,440	3.8	9.9
Colima	12,555	0.6	3,023	2.1	24.1
Distrito Federal	133,595	6.2	8,361	5.8	6.3
Durango	34,651	1.6	3,281	2.3	9.5
Guanajuato	115,505	5.4	6,370	4.4	5.5
Guerrero	75,510	3.5	4,223	2.9	5.6
Hidalgo	54,030	2.5	5,386	3.7	10.0
Jalisco	145,240	6.7	5,951	4.1	4.1
Mexico	304,490	14.1	7,808	5.4	2.6
Morelos	34,163	1.6	4,804	3.3	14.1
Nayarit	22,118	1.0	3,058	2.1	13.8
Nuevo Leon	87,897	4.1	6,219	4.3	7.1
Oaxaca	80,457	3.7	26	0.0	0.0
Puebla	122,949	5.7	5,693	3.9	4.6
Queretaro	37,808	1.8	5,505	3.8	14.6
Quintana Roo	27,273	1.3	3,962	2.7	14.5
San Luis Potosi	54,022	2.5	4,510	3.1	8.3
Sinaloa	55,198	2.6	4,001	2.8	7.2
Sonora	53,152	2.5	4,284	3.0	8.1
Tabasco	44,882	2.1	5,500	3.8	12.3
Tamaulipas	62,554	2.9	5,207	3.6	8.3
Tlaxcala	24,758	1.1	4,390	3.0	17.7
Veracruz	148,388	6.9	5,616	3.9	3.8
Yucatan	36,985	1.7	4,454	3.1	12.0
Zacatecas	30,371	1.4	3,568	2.5	11.7
Total	**2,153,416**	**100.0**	**144,517**	**100.0**	**6.7**

Source: INEE, 2012, 2016; CONAPO, 2015.

The third core variable that the INEE (2016) used for the sampling design was *'state'*. It is worth mentioning that Mexico consists of 32 states and had a population of around 121 million in 2015 (CONAPO 2015). Table 5.3 shows the number of grade 9 students that responded the PLANEA survey by state, and the estimated population aged 15 (age which should correspond to grade 9) by state. Similar to the type of school, a brief descriptive analysis of this variable showed that the proportion of students that were part of the sample did not match the proportion of the real population[20]. Nonetheless, the PLANEA evaluation has a relatively high number of respondents in relation to the real population of all the states but two, and consequently, as noted in the guideline (INEE 2016), estimations by state can be calculated. This proportion goes from 2.3 percent of the total number of students in Chiapas to 24.8 percent in Baja California Sur, with a national average of 6.7 percent. The sampling survey could not be carried out in the states of Michoacán and Oaxaca because regional authorities manifested that those states did not have the right conditions for data collection and the sample was not sufficient to be representative (INEE 2016).

The last variable that was used to define the sample was the size of the locality. The INEE (2016) divided all the localities into four categories (1 to 499, 500 to 2,499, 2 500 to 99,999, and 100,000 and more). Based on the fact that only 5.7 percent of grade 9 students lived in places with a population below 499, the two smallest categories were merged to simplify further analysis. It is important to point out that most students of TV schools lived in communities with a population of less than 2, 499, as this type of school is often located in isolated places; therefore, due to lack of infrastructure and human resources in those areas, this modality is the most cost effective one (and sometimes the only one available). In contrast, 46.2 percent of grade 9 students lived in cities with a population over 100,000. The INEE (2016) noted that although other secondary factors were also included in the sample design, they did not take a primary role, as they were not relevant to all populations and/or schools (e.g. degree of marginalisation and indigenous schools). Additionally, some sampling units were excluded in the design including secondary schools without grade 9 students, and schools where the size of the locality could not be identified.

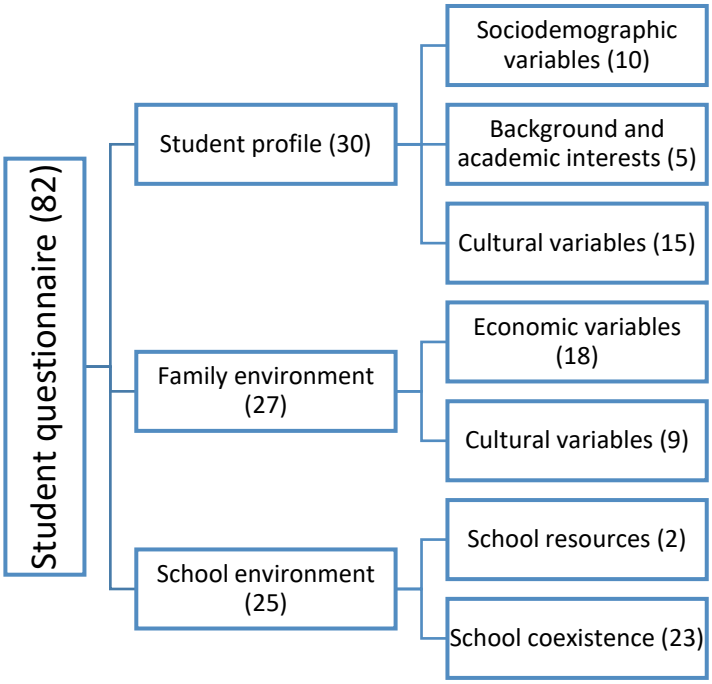
[20] According to the Mexican Government (CONAPO 2015) based on projections of the 2010 national census, the estimated population aged 15 in 2015 was 2,1 million; however, the (INEE 2012, 2015) estimated 1.78 million grade 9 students. As explained in chapter 2, this difference could be explained by the high dropout rate of Secondary school students, especially in the poorest regions of the country.

5.6 Operationalisation of analytical concepts in PLANEA

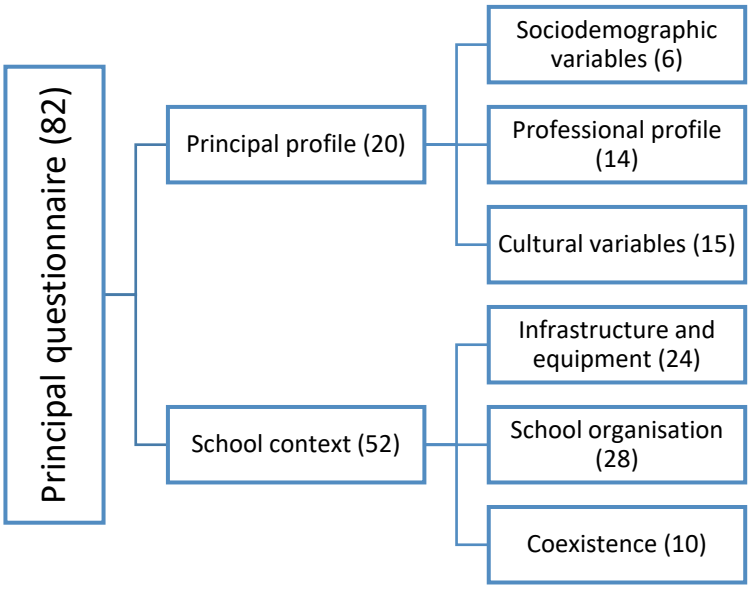
As mentioned in the previous section, the main purpose of PLANEA was the assessment of the educational system in Mexico, and not analysing specific behaviours or characteristics in schools. However, this evaluation includes two contextual questionnaires which were administered to students and principals in order to explore some personal and environmental factors that were linked to educational attainment and could explain differences between students (INEE 2016). Figure 5.1 displays the structure of the student's questionnaire, which explored three different dimensions: the individual profile of each student (including sociodemographic, academic, and cultural variables), their family environment (containing economic and cultural variables), and the school environment (with emphasis on coexistence). Similarly, as shown in figure 5.2, the context questionnaire administered to principals was structured around two contexts: the individual profile of the principal (comprised by sociodemographic, and professional variables), and the school context (linked to infrastructure and equipment, school organisation, and coexistence).

Based on the theoretical and methodological background, and aims and the research questions of this research, it is important to note that PLANEA contains all the necessary elements for its operationalisation. First, PLANEA contains variables related to the perceived frequency of ASB of students and principals and different aspects linked to the different forms of capital, which were used in the construction of the dependent and independent variables of this study. Additionally, because the contextual questionnaires contained student and school-level variables, PLANEA also allowed the use of an ecological approach such as the one suggested by (Bronfenbrenner (1979, 1994) and Bottoms and Wiles (2003). This means that the exploration of multiple levels helped to assess the effect that the students and school capital had on the perceived frequency of ASB. What is more, the sampling framework allowed the analysis of other environmental variables, including '*type of school*' and *'size of locality'*, which were used to address some important elements highlighted in the literature review (i.e. effect of capital and inequality in public vs private schools and small vs large localities). Lastly, both questionnaires contained questions in relation to economic, social, and cultural capital, and therefore, PLANEA can be used to explore the different forms of capital introduced by Bourdieu (1986). Hence, this section will

introduce and explore in more detail some characteristics of the variables that were used to operationalise the theoretical concepts of this research.



Source: INEE, 2016.
Figure 5.1: Context variables in the student's questionnaire.



Source: INEE, 2016.
Figure 5.2: Context variables in the principal's questionnaire.

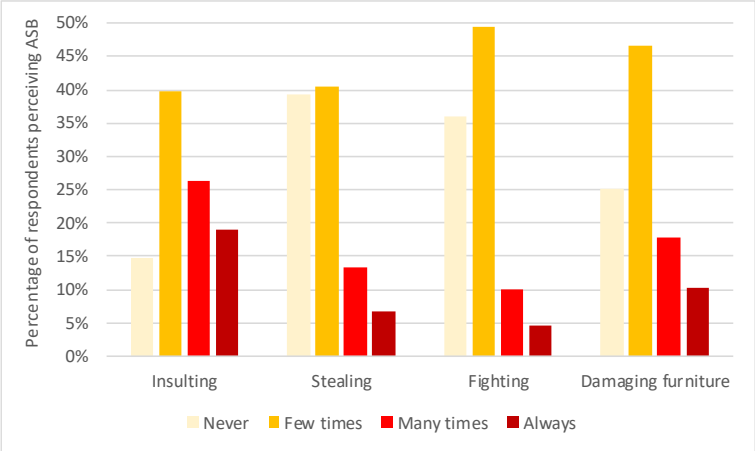
5.6.1 Dependent variable: Perception of antisocial behaviour in schools

As observed in figures 5.1 and 5.2, the context questionnaires of PLANEA (INEE 2016) contain some variables linked to social coexistence that can be used to assess the perception of some behaviours and activities in schools, including antisocial behaviours. All the variables are ordinal, as are the questions intended to assess the frequency with which these behaviours happened in the school context. The biggest limitations of PLANEA is the fact that it was not possible to explore the ASB of each individual as both, the students and principals were asked their view about how other students behave in their schools in relation to particular activities. Therefore, this thesis explored the frequency of perception of ASB in the school context. Yet, these variables remain relevant in the context of this research because the results showed the total levels of perceived ASB in each school, and therefore, it was possible to analyse the impact that the forms of capital and their inequalities have on the perceived frequency of ASB at the school level.

Moreover, these results could be linked to the real levels of ASB in schools, as some research suggests a link between perceived ASB and disorder and actual levels of these problems. For instance, in an analysis of the British Crime Survey, Budd and Sims (2001) found that those residential areas with higher levels of perceived ASB had also higher crime rates. They also showed that respondents who reported perceiving high levels of ASB were more likely to have been victims of crime in the previous year than those who perceived medium or low levels. Similarly, and also using data from the British Crime Survey, Wood (2004) showed that the perception of ASB had a much higher relationship with the personal experience of respondents than other factors, including other people´s experiences and the media. Upson (2006) also found that people who had experienced ASB were more likely to report the presence of ASB in their area, and in turn, only a small proportion of those who had not experienced ASB perceived there to be such problem. In more recent analyses of the Crime Survey for England and Wales, Flatley (2017) noted that the perceived levels of victimisation were linked to actual levels of crime prevalence.

In the school context, Laufer and Harel (2003) showed that the perception of frequent ASB in schools was an important predictor of youth violence, including bullying, physical fights, and weapon carrying. Using secondary data analysis, they explored possible risk factors linked to ASB in young students and found that the perception of school ASB had the highest

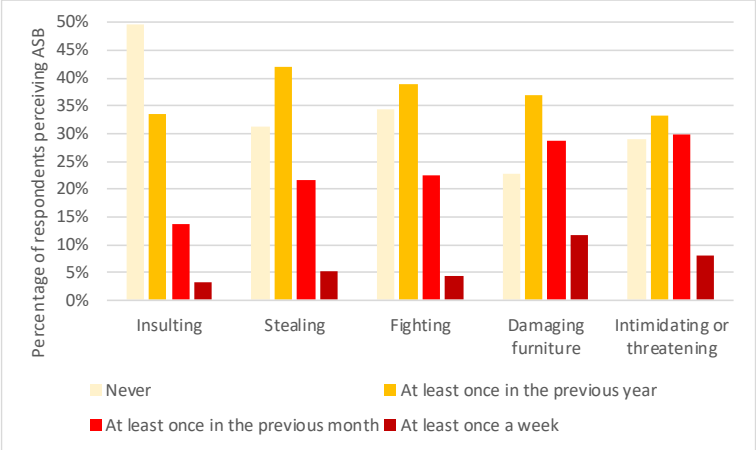
regression coefficient amongst all factors considered in the school context after controlling for family and social environment factors (i.e. peers). This study suggests that those students that perceive higher levels of ASB in their schools were more likely to get involved in ASB themselves.



Source: INEE 2016.
Figure 5.3: Variables linked to the students' perception of Antisocial Behaviour

As noted in section 4.2.1, the operationalisation of the dependent variable was based on two elements: Mayer's (2001) definition of ASB (which he defined as "*violation of socially prescribed patterns of behaviour*") and the subdivision of ASB used by Hinshaw and Lee (2003) (i.e. overt and covert behaviour). Four questions of PLANEA were used to measure the students' perceived frequency of ASB, in which students were asked their perception about four antisocial activities in their own classroom, describing how often they saw other classmates doing each one of them. These conducts were insulting, stealing items or money from peers, fighting, and damaging benches, the board or something else in the classroom. It is important to note that these activities fit very well the key elements used for the operationalisation of ASB described before. On the one hand, all these actions are not socially accepted behaviours in the school context, and therefore, they fit Mayer's (2001) definition of ASB (and Frazier's (2001) idea that ASBs affect the rights and norms of others (see section 4.2.1)). On the other hand, insulting and fighting are linked to overt behaviours (i.e. interpersonal aggression), while stealing and damaging furniture were indicated as covert or nonaggressive behaviours by Hinshaw and Lee (2003).

Each question had four possible responses according to the frequency in which they thought these activities happened, including: never, few times, many times, and always. Figure 5.3 shows the results of these variables, where it is observed that despite having very different frequencies, all of them show similar patterns. For example, *'few times'* was the most common response accounting for 40 to 50 percent of the total proportion for each variable. The least common answer in all cases was '*always'* varying from 5 percent in fighting to 19 percent in insulting. In three of the four variables, *'never'* was the second most common answer, except in insulting, in which '*many times'* was the most common.



Source: INEE 2016.
Figure 5.4: Variables linked to the principals' perception of Antisocial Behaviour

Similarly, the questions in the principals' questionnaire refer to the frequency with which they had seen antisocial activities among the students in their schools. They included similar questions but in the case of insulting, this refered to insults to teachers and staff members, and the set included an extra question related to intimidating or threatening other students (which can be considered an overt behaviour as it is characterised by verbal interpersonal aggression, and thus, fitting the division used by Hinshaw and Lee (2003)). The possible responses of the answers also changed as principals could pick one out of four options: never, once a year, once a month, and once a week. Figure 5.4 displays the results of these variables, in which, despite not being comparable to the students' response as they are measured in different scale, it can be observed that for the three variables that measure the

same activities (stealing, fighting, and damaging furniture) the results for the least and most frequent category are very similar. In the case of insulting, almost half of the principales answered that they have never seen this problem happening, compared to only 15 percent of the students, yet, this variable measures insults to teachers and not students. The least common response was '*at least once a week'*, varying from 3 percent in insulting to 12 percent for damaging furniture. Missing vales in both cases represented on average 5 percent of the total cases and because the large number of respondents in the evaluation, this will not represent a problem for further analysis.

5.6.2 Independent variables

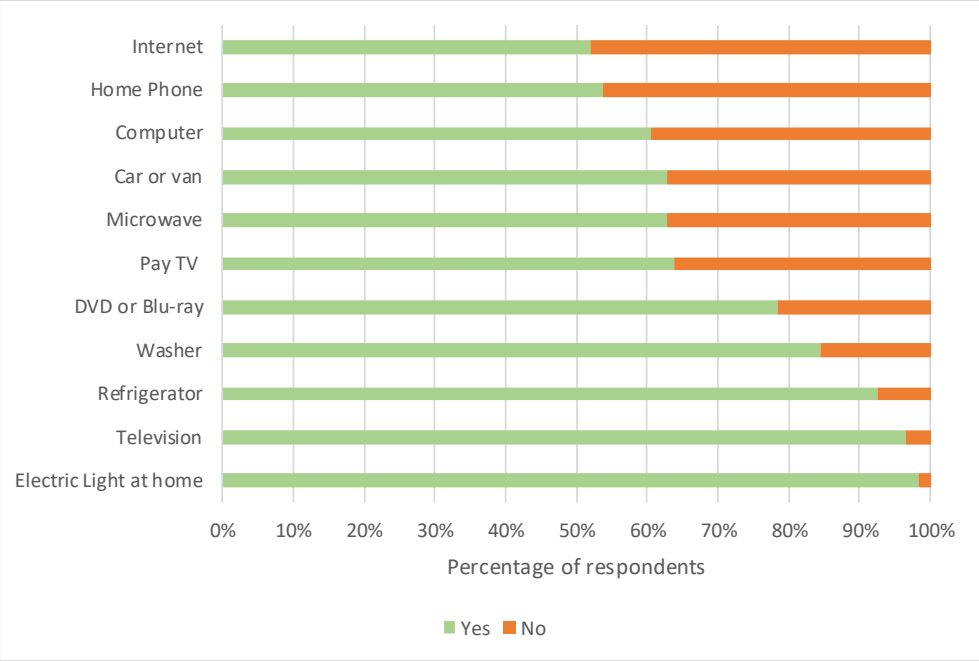
The main documents of PLANEA (INEE 2016) established that the contextual questionnaires were complementary tools that had the purpose of collecting information about economic, social, and cultural conditions associated with the family and school environment, which could influence the development of learning. It is important to note that none of these documents explicitly expresses the theoretical background for the design of the questionnaires (and most documents lack a list of references), yet, it is established that all the categories defined in figures 5.1 and 5.2 are validated measures that allow the analysis of those conditions. Furthermore, these documents consistently discuss the division of capital introduced by Bourdieu (1986) (i.e. economic, social, and cultural capital), and therefore, it is assumed that this framework was used in the design of the questionnaires. Yet, not all the variables linked to these dimensions were considered for further analysis, as some of the variables associated with social capital were used to construct the measures of perceived frequency of ASB, and other elements linked to cultural capital were not relevant in the context of this research. What is more, the questionnaire applied to the principals (which was used to construct all the measures linked to the school capital) did not included validated measures of cultural capital, and thus, the variables used in the construction of this form of capital were chosen based on the variables in the students' questionnaire and on previous studies. Thus, this section aims to explore some of the main characteristics of the variables associated with the forms capital of the students and their school.

Economic capital:

As discussed in section 4.3.2, Bourdieu (1986) used the concept of economic capital to refer to those resources that could be converted into money and that were *'institutionalised in the form of property rights*' (47). According to INEE (2016), the PLANEA survey contains two sets of questions that measure economic assets, one administered to students that aimed to identify the economic situation in their households, and one administered to the principals, which focuses on school infrastructure and equipment. Income was not included among the variables associated with economic capital, yet, as Bourdieu (1986) stated that this form of capital went beyond income distribution and wealth accumulation, these variables will allow the construction of measures for this form of capital. What is more, because as described in chapter 2, many Mexicans do not rely on traditional working activities to make a living (and indeed students do not receive an income), these measures seem appropriate as they will allow the analysis of all the students and schools, regardless of their economic situation or background.

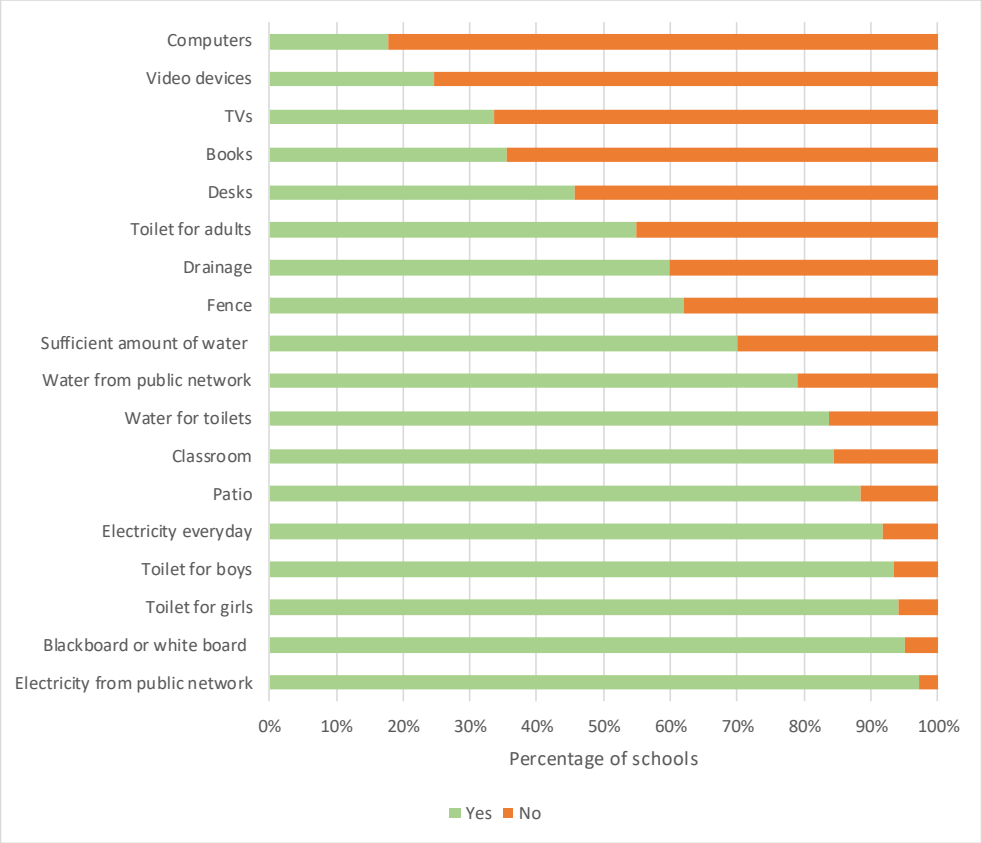
As displayed in figure 5.1, the context questionnaire of the students contained a set of 18 questions related to individual economic capital; yet, only 12 of them were used in the rest of the analysis[21]. All these variables are binary as students had to respond in the survey *'yes*' or '*no'* to the following question: *'Do you have any of the following things at home?*' Figure 5.5 shows the response of students in relation to the availability of assets in their household, where it can be observed that the percentage of students that reported having each one of the assets was more than 50 percent; however, there are significant differences between them. For instance, while essential services and goods such as electric power, refrigerators, and gas were present in more than 90 percent of the households, a large proportion of students lacked other non-basic items, especially those linked to information and technology services, with the exception of televisions, which were present in 96.4 percent of the students' homes.

[21] Six variables were not included in further analyses because either their interpretation and meaning were not necessarily linked to economic capital or they were not statistically significant in the CFA. The variables not included were related to the number of people living in the students' household, their workings status, and whether or not they were recipients of any sort of benefit.



Source: INEE 2016.
Figure 5.5: Student's economic assets at home.

The results show that, as expected, PLANEA is representative of the population, as some of its results match other official statistics; however, they also suggest that some of the poorest communities could be slightly underrepresented. For instance, in relation to access to home fuels, the National Household of Income and Expenditure Survey (INEGI 2014) found that 75.7 percent of households used liquefied petroleum gas as their main source for heating and cooking, and 7.3 percent natural gas; but the figures from PLANEA indicated that 90.8 percent of the students reported having gas in their houses. These differences could be linked to the lack of representation of rural dwellings, as almost 70 percent of the households that did not used gas were located in places with less than 2,500 inhabitants (INEGI 2014). Additionally, the number of students in the PLANEA survey that indicated owning other goods, especially non-basic ones, was considerably higher than the national average. While the reasons behind these differences are beyond the scope of this research, this situation could be explained by the fact that some groups were excluded from the survey, including those schools in which the size or marginalisation of the locality could not be identified and schools of the states of Oaxaca and Michoacán (both among the poorest states).



Source: INEE 2016.
Figure 5.6: School infrastructure and economic assets.

In relation to the economic capital of the schools, as shown in figure 5.2, there were 24 variables linked to the infrastructure and equipment of schools; yet, only 18 variables were used for the construction of a measure of economic capital[22]. The principals that took part in the survey were asked whether their school had those goods and services or not. Figure 5.6 shows the response of principals in relation to the infrastructure and assets of schools, where it can be noted that the variable with the highest proportion of positive response was electricity from the public network, with 97.1 percent of schools having access to this

[22] Six items were related to specific equipment suitable for people with disabilities, which analysis goes beyond the scope of this research. Moreover, as noted by the National Programme for the Development and Inclusion of Persons with Disabilities (SEP 2014), there is still a big problem regarding access to education of people with disabilities as in 2010, only 45.4 of the population with disabilities attended school and 13.3 percent of those with these conditions completed Secondary School. Therefore, all the variables linked to goods and equipment suitable for people with these conditions were excluded from the analysis.

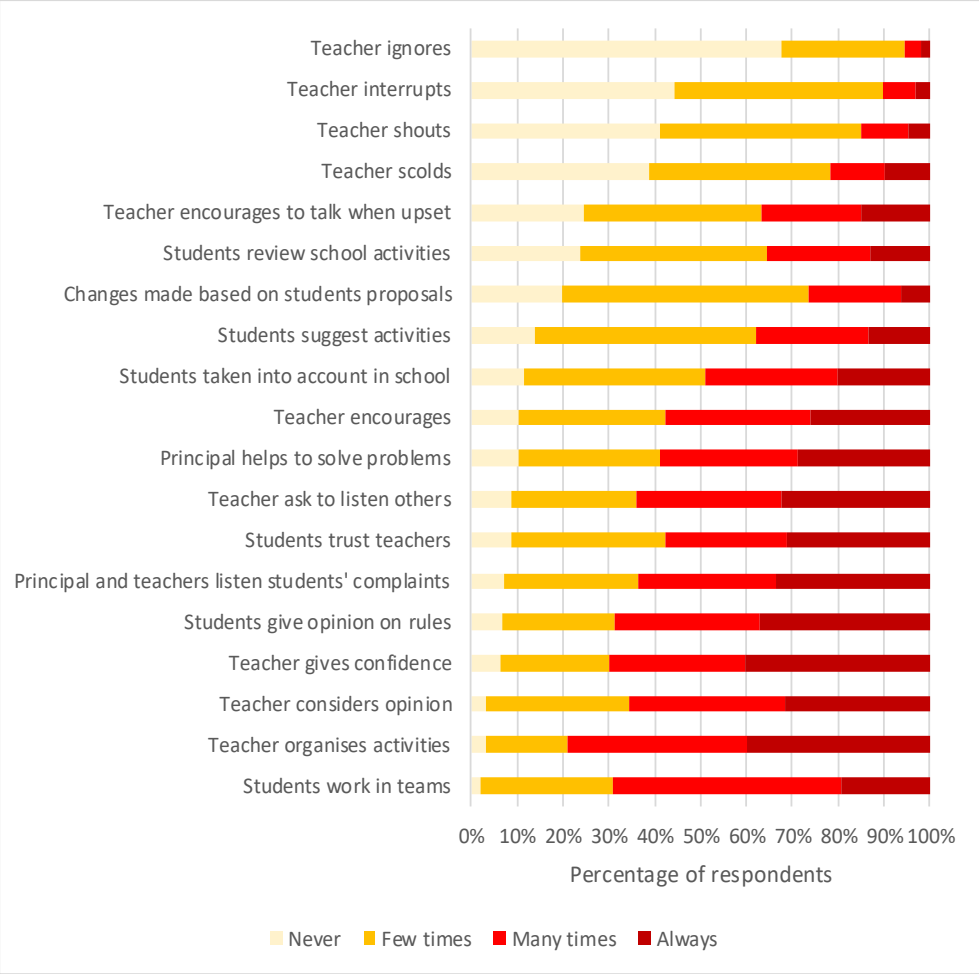
service. The least common goods in schools were once again the ones linked to information and technology services, and the variable with the lowest number of positive responses was '*computers*', with only 17.8 percent. It can be noted that there is a striking difference between the different types of schools and the state. For instance, 86.8 percent of private school principals reported having computers, compared to only 5.1 of TV schools. In Mexico City, around 42.6 percent of secondary schools had at least one computer for student use, compared to only 5.5 percent in the southern state of Guerrero. Similar to the students' data, these results are also slightly different from the ones shown by other official statistics, which could confirm the lack of representation of some of the poorest schools as the most basic services were higher in PLANEA than in the real population, including water from the public network, drainage, and toilets for children.

Social Capital:

As mentioned in section 4.3.2, the term social capital has been used by many academics to describe some aspects of social structures and how they facilitate certain actions within those structures (Coleman 1990). In Bourdieu's (1986) terms, social capital referred to the benefits associated with social connections and coexistence, which could be usable in the short or long-term. Because social capital is such a broad term that has been defined and interpreted in many different ways, the operationalisation of this concept in this thesis will be based on two elements: the discipline and the level of investigation (Robison et al. 2002). Therefore, according to previous studies about the relationship between social capital and ASB in the school context, social capital can be measured using variables such as those linked to closeness of ties and normative beliefs (Gottfredson and DiPietro 2011), relationships with other students and teachers (Dufur et al. 2015), teachers response to individual needs, and school environment (Dufur, Parcel, and Troutman 2013). Additionally, one important feature of the use of Bourdieu's notion of social capital in this thesis is the fact that, unlike other authors (Coleman 1988; Putnam 1995), Bourdieu did not restrict the use of this form of capital only to positive outcomes (Portes 2000), and therefore, the variables used to operationalised this concept can also include negative behaviours.

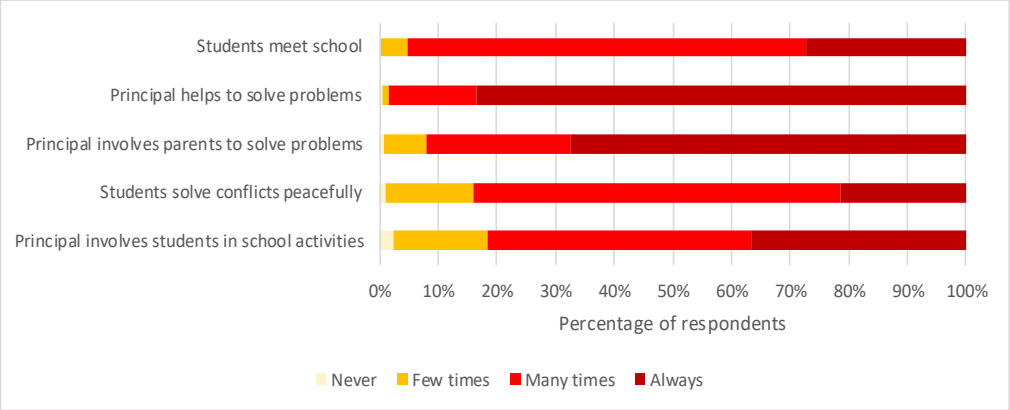
The context questionnaire administered to the students in the PLANEA survey had 23 variables linked to social relations in the school context; however, four of these items were part of the dependent variables of this research, that is, they were used to measure the perceived frequency of ASB among students. It can be noted that previous studies about the relationship between social capital and ASB in the school context have used variables similar to those shown in figure 5.7 to operationalise this concept. For instance, Gottfredson and DiPietro (2011) created measures of social capital based on variables that assessed the extent to which students care about, respect, and like teachers and principals and their view about the behaviour of other students. Similarly, Dufur et al. (2015) measured social capital in the school context using responses regarding the students' relationships towards other students and teachers, including how close and happy they felt with their school, their sense of belonging, feelings of safety, and a fair treatment by teachers. Dufur, Parcel, and Troutman (2013) created a composite measure of social capital that included, among other elements, variables linked to students' participation, conflicts of teachers, teachers' response to individual needs, and 14 variables that they labelled '*school environment'*, which included the students' view about various school problems.

As displayed in figure 5.7, all the variables associated with the social capital of the students were ordinal, as students had the opportunity to pick one of the following answers*: 'never', 'few times', 'many times'*, and *'always'*, based on the frequency with which a conduct or an activity happened in their school context. The results show that negative behaviours from teachers are rarely reported, or in other words, these conducts have the lowest percentage of the answers *'many times'* and *'always'*. For example, only 2 percent of the students reported that their teachers always ignore them, and 3.4 percent of them said this situation happened many times. On the contrary, some of the attitudes in which teachers showed positive behaviours where amongst the highest in frequency, including teachers that organised activities, considered the opinion of students, and gave them confidence. All the variables that display positive attitudes from teachers towards students had, on average, a response of '*many times'* and *'always'* of 62.3 percent. Conducts and attitudes related to the students, mainly linked to participation and inclusion in school's tasks, show very heterogeneous or mixed results.



Source: INEE 2016.
Figure 5.7: Students perception of social capital.

The context questionnaire administered to the principals of the schools also contained a set of 10 questions regarding coexistence in the school context; however, similarly to the case of the students, some of these variables were used to measure the perception of antisocial behaviour. Although only five items were used in the analysis of school social capital, they refer to different activities that allow the assessment of this form of capital, and interestingly, refer to perceived behaviours of both students and principals. These variables have the same categories as the students' questionnaire, in which principals were asked the frequency of certain activities, having the following options: '*never'*, *'few times'*, *'many times'*, and *'always'*.



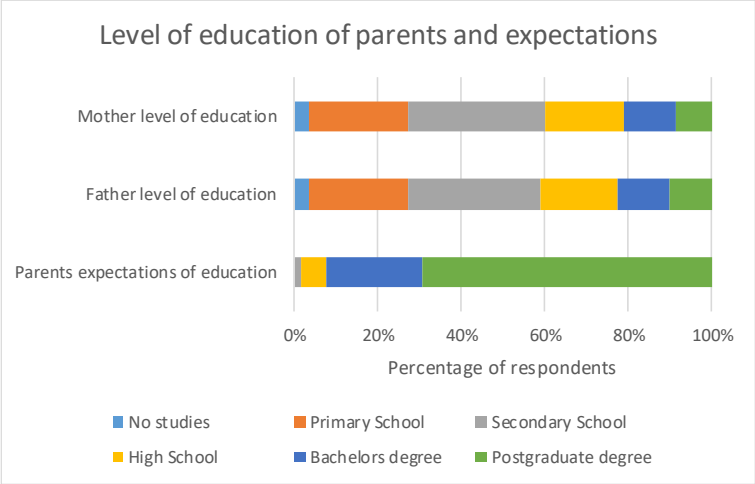
Source: INEE 2016.
Figure 5.8: Principals perception of social capital.

Figure 5.8 displays the frequencies of the variables related to the school social capital. It can be noted that the categories '*never'* and *'few times'* have a considerably lower incidence than the questions linked to the students' perception of social capital. The variables related to the way in which principals solve conflicts show the highest number of '*always*', in which 82.2 percent of the principals considered that they always talk to the students to help solving their problems, and 70.3 percent thought that they involve parents in every problem that arises, so they can try to solve it together. On the contrary, the results could show a lack of interaction between principals and students, as only 32.9 percent of principals answered that they always involved students in school activities.

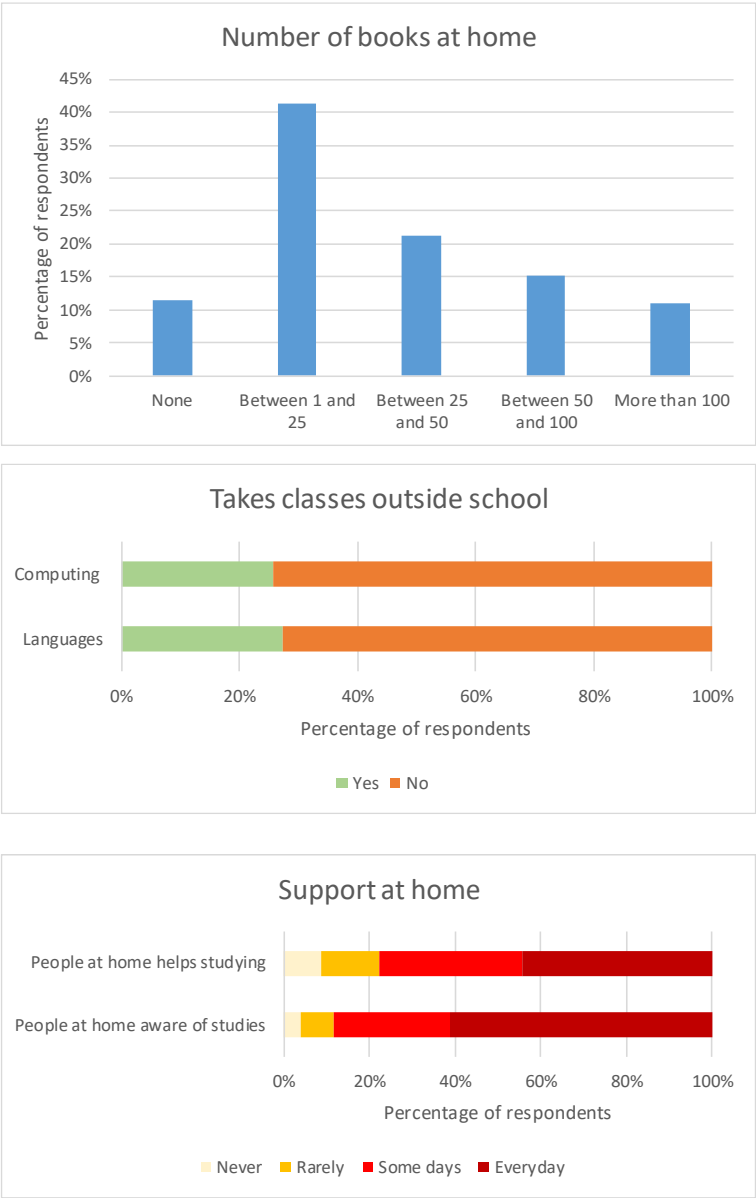
Cultural Capital:

Lastly, as stated in section 4.3.2, Bourdieu (1986) used the concept of cultural capital to refer to long lasting dispositions in of body and mind (usually linked to what is often called culture), cultural goods, and education qualifications. Thus, this form of capital refers to a variety of elements, some of which are objectified (and which could be linked to economic capital), and other which are symbolised through attitudes, dispositions, and knowledge. PLANEA contemplated fifteen questions in the student's questionnaire related to individual cultural capital and 9 to cultural capital in the family context, however, not all of them were

included in further analyses for various reasons[23]. Figure 5.9 shows the variables used in the rest of the analysis, where it can be noted that there are different types of answers to the questions, including binomial (yes and no), and ordinal (i.e. occurrence, level of education, and grouped numbers). In the first graph, it can be observed that the proportion of the level of education of both, the fathers and mothers of the students that responded the survey, were very similar. The category that has the highest proportion was secondary school, with 31.5 percent of the fathers and 33 percent of the mothers having this as their highest level of education. Around 12 percent of them had a bachelor's degree, and 10 percent of fathers and 8 percent of mothers had a postgraduate degree. Those with no studies accounted for only 3 percent of the cases.



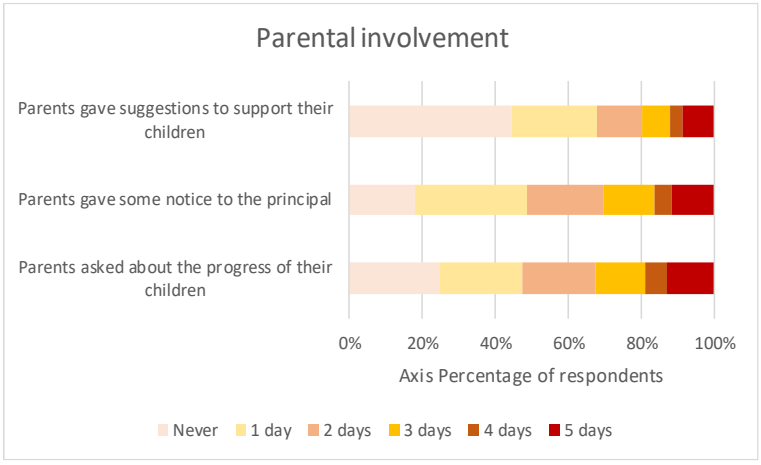
[23] The variable linked to the reception of free textbooks at schools (which all Mexican students should get by law) was excluded as the largest proportion of students who did not receive them where those who attended to private schools (more than half of the total students who did not get them). In this case, their absence does not reflect a condition of deprivation of cultural capital as it could be assumed they will get other type of books. Similarly, the attendance to some events and activities such as sports and festivals, did not relate directly to what is commonly refer as culture, that is, *'manifestations of human intellectual achievement regarded collectively'* (OED 2016b). Other variables linked to family activities were not statistically significant or could not be computed in the Confirmatory Factor Analysis, and thus, had to be excluded from the analysis.

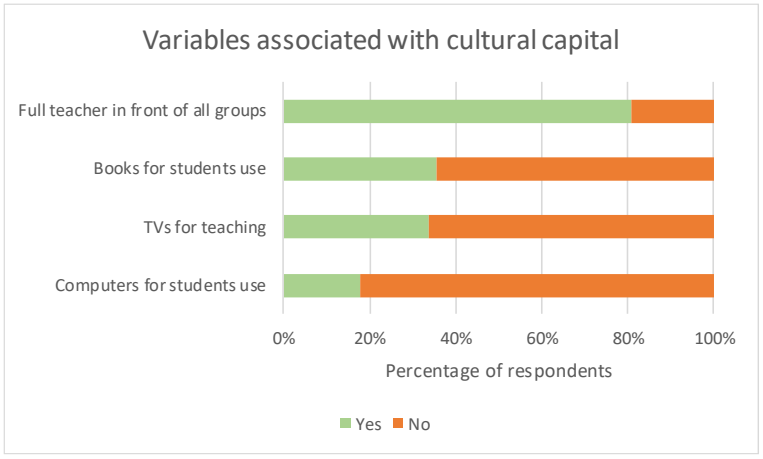


Source: INEE 2016.
Figure 5.9: Students cultural capital.

The other variables linked to the students' cultural capital were grouped in four different graphs according to the categories of their answers. In relation to the number of books at home the results show that around 41 percent of the students had between 1 and 25 books at home, followed by 21.2 percent that stated owned between 25 and 50, and 15.3 percent who said had between 50 and 100 books. The third graph shows some classes that students take outside their school, in which it can be noted that 25.6 percent of the respondents stated

that they took computing related classes and 27.2 percent languages. Finally, the last graph shows the support of the students at home; where 77.7 percent of the students responded that someone at home helped them studying regularly (every day and some days), while 13.5 percent responded that this situation rarely happened and 8.6 percent that it never happened. Most of them pointed out that people were aware of their studies (88 percent), only 3.8 percent said that their families were never aware of them and 7.7 percent answered it rarely happened.





Source: INEE 2016.
Figure 5.10: Schools cultural capital.

As mentioned in the introduction of this section, unlike economic and social capital, which were contemplated in the design of the context questionnaire administered to the principals in the PLANEA survey (INEE 2016), the INEE did not included a set of variables named *'cultural capital'*. However, this does not mean that these elements were excluded from this research, as other variables of the principals' questionnaire were used to analyse various aspects linked to the cultural capital of the school. In this sense, in order to validate these variables, they were divided into three different categories: those variables that relate to parental participation and support, a variable that shows the presence of full teachers in all classes (fully qualified teacher in charge of the group), and the ones that are linked to infrastructure linked to cultural capital. In relation to the first group, Goldthorpe (2007) pointed out that family represents the main source of cultural capital, so based on the variables linked to the students' cultural capita that showed support at home, these measures were included in the analysis as they show the involvement that parents have in the education of their children. The first graph of figure 5.10 shows the frequency with which some parents approached the principal in the last week to address some issues, where it can be noted that the most common reason why parents were involved in the school was to give some notice. 87.6 percent of the principals pointed out that this situation happened at least once in the previous week. This is followed by parents asking about the progress of their child, with 80.4 percent, and suggestions to support their child, with 62.7 percent.

The second graph shows the rest of the variables linked to cultural capital in the school, in which can be observed that around 80 percent of the principals pointed out that they had a full teacher in front of all the groups. Although there is not a similar measure in the students' questionnaire, this is an important element that was included in the analysis because it shows whether students are receiving education from professional teachers or not (and thus limiting to some extent the quality of education). Lastly, the other three variables refer to some resources associated to cultural goods (highlighted by Bourdieu as an important element of cultural capital). Kingston (2001) stated that culture involves the presence of things like books and computers, because they are linked to the development of literacy. It can be noted that more than half of the schools in the country do not have any of these items. Only 35 percent of the schools had books for student use, 24.7 percent televisions for educational purposes, 21.3 percent video devices for teaching, and 18.5 percent have a computer.

5.7 Limitations and ethical considerations

Although PLANEA is the best source available to carry out this research, it is important to mention some limitations and ethical considerations that must be taken into account before making any assumption or estimation. Appendix 1 shows the research ethics and integrity forms that were submitted to the Law School of the University of Edinburgh, which was approved on April 14th, 2017. It is important to mention that the National Plan for the Evaluation of Learning (INEE 2016) is available online, and the guideline paper encourages its use for academic purposes without further approval of any individual or organisation. Hence, as the information is publicly available and it has been analysed in detailed by government officials before its publication, the ethical considerations are minimal. In this sense, it can be noted that the survey does not contain information that could be used to disclose or identify individuals. Probably the greatest issue would be connected with the focus of this study, which is the analysis of antisocial behaviour, in which the outcomes of this research could be used to label certain groups or increase the stigma against them. However, the results do not have the purpose of harming in any way individuals or groups but helping policy makers to understand better the problems of antisocial behaviour and inequalities in schools. What is more, any quantitative relationship would just show that schools that belong to certain areas or with some characteristics are more likely to experience higher levels of antisocial behaviour; and hence, it should not be used in a deterministic manner.

Large-scale surveys like PLANEA are hard to handle, often taking a long time to set up (Donnellan and Lucas 2013; Vartanian 2010), and thus, especial attention must be paid to the construction of all the measures of capital and inequality, as any mishandling or miscalculation could affect the results of this research. Donnellan and Lucas (2013) pointed out that the biggest disadvantage of secondary analysis is the fact that the data has been collected by someone else, so researchers lack control over the variables in the survey (Vartanian 2010); therefore, more detail was paid to the interpretation of the theoretical and analytical concepts (Burton 2000). Because this research was based on different measures that were not included in the design of PLANEA, the operationalisation of some analytical concepts was challenging. This situation represented a limitation particularly for the dependent variable as the information from PLANEA contained questions linked to the

perceived frequency of ASB and not self-reported activities. Consequently, the results of the final models will indicate just how capital and inequality affect the way students and principals perceive the problem. Yet, as stated in this chapter, some researchers have suggested a link between perceived antisocial behaviour and disorder and actual levels of these problems (Budd and Sims 2001; Flatley 2017; Laufer and Harel 2003; Upson 2006; Wood 2004). Another important element that was not validated in the design of PLANEA is the cultural capital of the schools; however, the variables used for the measurement of this latent concept were validated using the framework of the students' questionnaire and some existing research. Nonetheless, there are other elements highlighted in the background and literature review (chapters 2 and 3, respectively) that were linked to ASB and which cannot be measured using PLANEA, including the presence of crime and violence outside schools, the view of students on organised crime, and the alternatives that they perceive for the future.

Another limitations of the survey associated with the sampling framework is the fact that only estimations for all the population and by type of school, size of locality and state can be established, so the results in other subpopulations had to be validated (INEE 2016). In this sense, the lack of information from two states and localities in which the size is unknown could have had some consequences, since very important figures could have been lost. This situation is relevant to note because, as shown in this chapter, it might have led to the overrepresentation of the largest localities. Thus, this research excluded all those environmental variables in which estimations could not be validated (the models were established to assess the effects of capital and inequality among all the students and in schools, and those in different types of schools and localities). Lastly, it has to be pointed out that PLANEA does not contain information about any other variable outside the family and school context, so further research will be needed to analyse the extent to which capital and inequalities affect students beyond the school environment. Nevertheless, this dataset was the best one available, and as Vartanian (2010:16-17) pointed out, many quantitative researchers '*trade control over the conditions and quality of the data for accessibility, convenience, and reduced costs in time, money and inconvenience to particip*ants'.

5.8 Conclusions

This chapter introduced the instrument that will be used to analyse the relationship between the forms of capital, their inequality, and the perceived frequency of ASB in schools, it also discussed some elements of the research design, including the aims and research questions, the operationalisation of the dependent and independent variables, and some limitations and ethical considerations. In the first section of this chapter it was shown that by responding to the research questions proposed in this study, it would be possible to fill some of the gaps of the literature about the effects of capital and inequality on ASB in schools. In this sense, it can be noted that the aims and research questions presented in this chapter were based on the results of the literature review presented in chapter 3 and some considerations of the theoretical and methodological perspectives shown in chapter 4. Hence, this study aims not only to explore the relationship between the forms of capital, their inequality, and the perceived frequency of ASB in schools, but also to address some issues overlooked by previous studies, including the use of a multidimensional approach for the measurement of wellbeing, variables at different levels of analysing, and of appropriate measures of capital and inequality together.

Based on the aims of this study and after reviewing some instruments that might have allowed the operationalisation of the core concepts, it was determined that secondary analysis was the best approach for this study. This decision was taken because some existing datasets contained the necessary elements to operationalise this research, and despite having some limitations, they provided a very large sample size and reached subpopulations that would have been impossible to contact using any other type of primary empirical analysis. After reviewing other national surveys, the National Plan for the Evaluation of Learning (INEE 2016) was selected as the tool to continue with this study because it contained all the necessary elements to explore the effects of capital and inequalities on the perceived frequency of ASB in schools, and due to the fact that the other datasets presented some methodological and theoretical obstacles. Although the main purpose of PLANEA was the evaluation of the education system, it contained two contextual questionnaires administered to students and principals that contemplate all the core concepts of this research, allowing the construction of measures based on the forms of capital of Bourdieu

(1986), and the use of an ecological approach to assess the effects of individual and school-level variables.

Even though PLANEA seems to be appropriate to continue with this study, it also presented some limitations that must be taken into account before making any assumption or conclusion. The main challenge was discussed in the analysis of the dependent variable, in which the questions that will be used to measure ASB in schools contained information about the perceived frequency of ASB of other students and not self-reported behaviours. Yet, this remains relevant in the context of this study because the results of the final models will show the relationship between the forms of capital, their inequalities, and the likelihood someone has to go to a school with high levels of antisocial behaviour and disorder. In relation to the questions that will be used to operationalise the concepts linked to the forms of capital, that is, for the construction of measures of economic, social, and cultural capital, there are some methodological aspects must be addressed before proceeding with the analysis. As discussed in chapter 4, the main challenge is linked to the fact that traditional measures of capital are based on a single continuous variable (i.e. income), thus, because the variables linked to the forms of capital are categorical, there will be some technical difficulties in the construction of measures of capital, especially in relation to the use of weights. Similarly, most inequality measures are based on income, and in spite of the fact that many scholars have indicated that other aspects must be included in the measurement of inequality, there is not a consistent framework to calculate such measures. Therefore, the next chapter will discuss the methods used in this research, especially those used in the construction of measures the forms of capital and their inequality, but also the ones that were employed to assess the link between them and the perceived frequency of ASB.

Chapter 6: Methods

6.1 Introduction

As explained in chapters 4 and 5, the analysis conducted in this thesis (about the relationship between different forms of capital, their inequality, and the perceived frequency of ASB in schools) carries several methodological difficulties, many of which have been overlooked by similar studies in the past. Probably one of the biggest challenges is the creation of measures of capital and inequality because traditional approaches to calculate these concepts have been based on a single continuous variable (i.e. income). However, these traditional measures are not in line with the purpose of this study because capital measures based on income do not reflect the needs and quality of life of individuals, and traditional measures of inequality like the GINI index only focus on the middle part of the distribution (i.e. middle earners). What is more, as showed in chapter 3, most studies that have analysed ASB in the school context have focused on either individual characteristics or environmental elements, and thus, some scholars have made assumptions about the effects of the different forms of capital or their inequalities based on a partial picture of the problem. Therefore, the purpose of this chapter is to present in more detail the methods that will be used for the construction of the measures of capital and inequality, as well as those that will explore the relationship between these measures and the perceived frequency of ASB in schools.

This chapter is divided into two main sections. The first section will introduce the methods used for the construction of latent constructs (unobserved variables calculated based on observed elements) associated with the perceived frequency of ASB and the forms of capital, followed by a discussion about the main elements that were used for the calculation of the inequality measures. This section will discuss first some elements of structural equation modelling, a method that allows the integration of measurement models (which calculate the relationship between of observed and unobserved variables) with structural models (which will allow the analysis of the effect between the latent or unobserved variables), focusing then on Confirmatory Factor Analysis, which was the measurement model used in this research. The last part of this section will describe the rationale behind the measures of inequality, including the use of generalised entropy (GE) and the addition of a parameter

that allows the identification of inequality at different parts of the distribution (of the capital measures). The next main section of this chapter will present more detail about the use of multilevel modelling, a statistical method that will be used for the analysis of the relationship between the students' perceived frequency of ASB, and the measures of capital and inequality. This statistical method will be used because it respects the hierarchical structure of the data, that is, the effect of the student and school-level variables, and therefore, it can be employed to establish an ecological model that respects the effect of individual and environmental elements.

6.2 Measuring antisocial behaviour, capital, and inequality

As pointed out in chapter 4, the use of proxies to make assumptions about some individual and social processes has carried many problems, mainly because these processes often depend on many other elements and characteristics. This issue has been especially highlighted in the field of economics, where the use of income as the only proxy of wellbeing has been widely criticised by many scholars (Kolm 1977; Atkinson and Bourguignon 1982; Maasoumi 1986, 1999; Sen 1995; Tsui 1995, 1999). Similarly, it could be argued that measuring the perceived frequency of ASB employing just one action or behaviour, would not truly capture the definition of this problem[24], and thus, any analysis bases on one variable or proxy would yield partial or inconclusive results. What is more, as explored in chapter 5, the dataset that will be use to operationalise the concepts of this research contains several variables linked to each form of capital and the perceived frequency of ASB of students and principals in secondary schools, thus, using proxies or excluding some variables would mean making assumptions about the nature of these concepts.

Furthermore, based on the findings of the literature review showed in chapter 3 and the theoretical perspectives discussed in chapter 4, it was concluded that a multidimensional approach for the calculation of capital and inequality measures would be more appropriate for this research, yet, it was stated that it also carries some technical and methodological challenges. These challenges include, among others, the decision of which elements to use, the importance given to each of one of them (i.e. weights), and the construction of inequality

[24] Defined in chapter 4 as a "violation of socially prescribed patterns of behaviour", including aggression, vandalism, defiance of authority, and violation of social norms (Mayer 2001:414).

measures that focus at different parts of the distribution. Thus, this section is divided into three different subsections. The first subsection will explore the main concepts and ideas of SEM, to then focus in the second one on the measurement part of SEM, that is, the statistical technique that will be used to compute the measures of capital and perceived frequency of ASB, which for this study will be based on Confirmatory Factor Analysis (CFA). This section will finish with a brief introduction to Generalised Entropy and the use of measures to explore the effects of inequality at different parts of the distribution, which as stated before, will be used to calculate inequality in the students' capital.

6.2.1 Structural Equation Modelling

As mentioned before, Structural Equation Modelling (SEM) has been suggested by many scholars as the best approach to measure unobserved variables or latent constructs, including capital and inequality (Ayala 2010; Krishnakumar and Nagar 2008; Tomlinson, Walker, and Williams 2008; Voth-Gaeddert and Oerther 2014; Walker, Tomlinson, and Williams 2012; Walker 2015; Wendelspiess Chávez Juárez 2015). SEM is a multivariate statistical technique emanated from econometric models of supply and demand and biology studies of path analysis (Muthén 2002), and consists of two parts: the measurement model and the structural model. The measurement model refers to the relationship between the observed variables and the latent construct. In this research, the relationship will be estimated using Confirmatory Factor Analysis (CFA), where a hypothesised model is compared to a data driven model, using covariance matrices to test their fitness. CFA is more appropriate for this research than other similar methods used to calculate latent constructs because it allows the construction of measures based on theory, as opposed to other exploratory methods that seek to find underlying latent structures (i.e. Exploratory Factor Analysis). The structural model refers to the assessment of the validity of the model and the further analysis of direct and indirect effects between latent variables and other factors (Voth-Gaeddert and Oerther 2014); which in this study will be used to assess the relationship between the measures of capital and inequality, and the ones linked to the perceived frequency of ASB. Muthén (2002) defined the structural as:

$$\eta_i = \alpha + \beta\eta_i + \Gamma x_i + \zeta_i, \qquad (1)$$

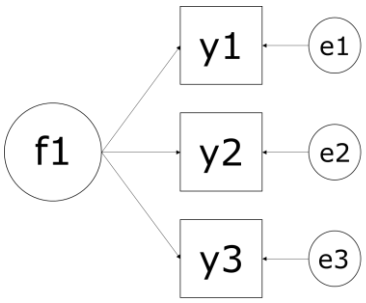
where '*the model is defined in terms of latent variables regressed on each other and the q-dimensional vector x of independent variables*' (Muthén 2002, 84). α is an m-dimensional parameter vector, β a $m \times m$ parameter matrix of slopes for regressions of unobserved constructs on other latent constructs, Γ an $m \times q$ slope parameter matrix for regressions of unobserved variables on independent variables, and ζ a m-dimensional vector of residuals. In other words, the predicted value of the latent variables can be estimated as a function of the intercept or initial level plus the effect of other unobserved variables on the latent constructs, plus the effect of the independent variables on the latent constructs, plus an error term or residuals.

One of the main advantages of Structural Equation Modelling is that each one of the dimensions are tested against real data and weights are assigned empirically. Voth-Gaeddert and Oerther (2014) also noted that the derivation of indicators based on the common variance (the basis for SEM), helps to avoid measurement error. This approach seems more appropriate than other indices because SEM avoids the errors accumulated from the summation of variables, and factor scores of each dimension can be used as measures of welfare. Another benefit is the fact that it does not reduces the dimensionality arbitrarily, but it is driven by predefined concepts (Walker, Tomlinson, and Williams 2012), thus, it tests theoretically supported concepts instead of '*fishing in data*' (Walker 2015, 4). Therefore, SEM allows the operationalisation of a conceptual framework of multidimensionality, validating different elements in order to use them together on a single measure (Ningaye, Alexi, and Virginie 2013). Finally, it is important to mention that the analysis was carried out using Mplus version 6.1 (L. Muthen and Muthen 2011) because it is a comprehensive statistical package specialised on SEM that allows the establishment of different models, including multiple group analysis (which will be used to explore and compare the effect of capital and inequality on each type of school and in localities of different sizes).

6.2.2 Confirmatory Factor Analysis

As discussed in the previous section, SEM consist of two elements: the measurement and the structural model. For the purpose of this study, it is particularly important to understand some of the main ideas behind the measurement part, as it will be the used as the basis for the construction of the measures of capital, and the perceived frequency of ASB. Although,

there are many methods to estimate unobserved theoretical concepts based on observed variables, most of them carry some technical problems, especially the arbitrary allocation of weights to all the variables used in the construction of these measures, and the accumulation of measurement error. Hence, Confirmatory Factor Analysis (CFA) was chosen, as it is a method that allows the estimation of unobserved variables or latent constructs based on the relationship among the observed variables, which means that instead of setting arbitrary weights to each observed variable, these are calculated based on the relationship that they have with the latent construct. Therefore, CFA makes possible the estimation of theoretical concepts, which cannot be quantified in real terms, based on the variables that exist in the PLANEA survey, without using proxies or making any assumption about the nature of capital or perceived frequency of ASB. This measurement model is also the best option available because it can be integrated into Structural Equation Models (SEM), where '*regressions among continuous latent variables are estimated*' (Muthen and Muthen 2011) and which will be later used to explore the relationship between the dependent and independent variables.



Source: Muthen and Muthen 2011
Figure 6.1: Graphical representation of Confirmatory Factor Analysis.

The idea behind factor analysis is the estimation of all the correlations of the observed variables (which are free of error) in the covariance matrix, in terms of other underlying latent variables (Bollen 1989), and thus, the observed variables are the linear combinations of the underlying latent constructs (Suhr 2005). As indicated by Muthen and Muthen (2011), in CFA the observed variables are usually referred to as indicators and the latent constructs as factors, and the results of the analysis show three different relationships: one among factors, one among the observed variables, and the relationship between observed variables and factors. Figure 6.1 displays the graphical representation of CFA, where it can be

observed that the squares represent the observed variables, the circles the latent constructs or unobserved variables, and the lines the hypothesised causal direction (Randall and Jung 2018). In relation to the construction of the measures of this research, the observed variables are all the variables described in chapter 5, the unobserved variables or latent constructs are the concepts of economic, social, and cultural capital, and the perceived frequency of ASB, and the lines represent the relationship between these concepts and the observed variables. The right hand-side arrows that touch the square boxes represent the residuals.

The most common estimation technique in CFA is Maximum-Likelihood (ML), which assumes multivariate normality (Muthén 2002). However, Ningaye, Alexi, and Virginie (2013) suggested the use of Weighted Least Squared (WLS) in multidimensional poverty measures because they consider it more effective than ML and Generalised Least Squares (GLS) when the data is large and the nature of the observed variables is ordinal or binomial. WLS is an extension of Ordinary Least Squared (OLS) in which weights are applied to the observations, and thus, slopes are calculated minimising '*weighted least squares*', that is, the difference between the observed weighted value and the predicted value (Lewis-Beck, Bryman, and Futing Liao 2004). It is important to note that all the parameters in the model must be identified in order to identify the model as a whole, hence, the minimum requirement for the identification of the model is that the number of unknown parameters should be at least the same or less than the number of known parameters (Randall and Jung 2018). The estimation of the model follows three steps. First, the matrix of polychoric correlations between the variables are estimated, that is, the matrix of correlations between the vectors of continuous latent variables associated with the observed ordinal variables (Flora and Curran 2004). The next step is the estimation of the asymptotic covariance matrix of polychoric correlations. Finally, model parameters are estimated by the WLS method.

Statistical software specialised in SEM such as Mplus (Muthen and Muthen 2011), display a set of fit statistics to assess the validity of the model; yet, some of these validation indices can be redundant. Weston and Gore (2006) suggested using the following indicators because they are less sensitive to sample size and model complexity:

- Chi-square (χ^2): a measure of the difference between observed covariances and the covariance matrix predicted by the model, which is divided by the degrees of freedom in de model so 95% of the sample is included in the χ^2 distribution. It is suggested that χ^2/df should range between 2 and 5.
- Goodness of fit (GFI): represents the variation in the model explained by the data (equivalent to R^2 in a regression. Its value should be ≥ 0.90.
- Root Mean Square Error of Approximation (RMSEA): it accounts for the model complexity (similar to χ^2). Values must be around ≤ 0.1.
- Root Mean Square Residual (RMSR): this test compares the model to the data using residuals. Values should be ≤ 0.08.
- Comparative Fit Index (CFI): it compares the specified model to a null model. Its value should be ≥ 0.9.

Because CFA is a method that uses covariance matrices to compare hypothesised and data driven models, it offers the possibility of creating multidimensional measures based on theoretical models while taking into account the own and distinctive relationship between each observed variable and the unobserved latent construct. Hence, in order to create measures for capital and the perceived frequency of ASB, the factor scores for each individual and school must be calculated, that is, the values of the latent variables for individual observations (Bollen 1989). These resulting factor scores will show the 'level' of capital and perceived frequency of ASB of each student and school; however, as these factors are not easily interpretable and their range can take positive and negative numbers, they will be normalised. Normalisation implies eliminating the original unit of measurement to transform it into a new scale (Abdi and Williams 2010). In this case, all the scores from the latent variables will be transformed into new scores for the reasons stated before but also for the purpose of the calculation of the inequality measures (which cannot take negative values). Therefore, the measures of capital and perceived frequency of ASB will then have a range from 0 to 1, in which 0 denoted the minimum value (when students and schools did not have any capital or did not perceived any ASB) and 1 the maximum value possible (the highest absolute level of capital or when they always perceived ASB).

6.2.2 Measuring inequality

One of the main contributions of this research to the existing literature about the effects of deprivation and inequality on the perceived frequency of ASB will be the use of both measures together in the same model. As pointed out in chapter 4, Pridemore (2011) noted that criminological studies on inequalities, which are mainly at cross-national level, often do not include a control for poverty, and those that link deprivation to criminal behaviour (most of which have been carried out in the US) have not contemplated inequality measures at all. Therefore, some of the differences in the outcomes of the studies about the effects of capital and inequality on crime and ASB can be attributed to model misspecifications, in which not the right variable or relationship has been established (Pridemore 2011). In this sense, as observed in figure 6,2, the final models of this research will include measures of both capital and inequality together, in order to address this methodological issue. It is important to note that the inequality measures will refer to inequality within schools, and thus, is linked to the student's capital (as there is only one measure of school capital per school). That is why the model also includes the average level of the students' capital, so the model will be able to assess the effect of inequality over and above deprivation (and both variables are linked to the same theoretical concept). However, as discussed in chapter 4, even after establishing an accurate model, the calculation of the inequality measures can carry some theoretical and technical difficulties. It is in this context that this section aims to introduce some aspects of the measure of inequality that will be used in this research, which will be based on the multidimensional measures of capital calculated in the previous section, and that will include parameters that will allow the analysis of inequality at different parts of the distribution.

Although many economists and social researchers have agreed on the establishment of a series of principles that any inequality measure must satisfy, most of them are still heavily dependent on income, thus ignoring other important elements of the quality of life of individuals. Therefore, many scholars have pointed out the necessity of establishing inequality measures that take into consideration the multidimensional nature of wellbeing (Atkinson and Bourguignon 1982; Kolm 1977; Maasoumi 1986; Sen 1995; Tsui 1995). As noted in chapter 4, this research will focus on some aspects of two-step measure introduced by Maasoumi (1999), where the aggregation of all the welfare attributes is first computed in

one function of utility (which in this research will be carried out using CFA), and then to measure the dispersion of this function using a unidimensional inequality measure. Maasoumi (1999) proposed an inequality measure based on a generalised entropy (GE), a concept originally applied to information theory, entropy relates to the level of disorder in a system, where maximum entropy is linked to complete disorder (or minimum inequality/maximum equality), and minimum entropy to complete order (or maximum inequality/minimum equality) (Bailey 1985). Theil (1967) first introduced this concept to the field of economics, proposing two inequality measures that were completely decomposable in *within* and *between* group inequality. Maasoumi (1999, 6) identified Generalised Entropy indices as the '*desirable scale invariant family of relative inequality measures*' as they satisfy all the inequality measures axioms, applying the following formulas to the aggregated wellbeing function S_i:

$$M_\gamma(S) = \sum_{i=1}^{n} p_i \left[\left({S_i^*}/{p_i} \right)^{1+\gamma} - 1 \right] / \gamma(1+\gamma),\ \gamma \neq 0, -1 \qquad (2)$$

$$M_0(S) = \sum_{i=1}^{n} S_i^* log \left({S_i^*}/{p_i} \right),\ Theil's\ first\ index\ (\gamma = 0) \qquad (3)$$

$$M_{-1}(S) = \sum_{i=1}^{n} p_i log \left({p_i^*}/{S_i} \right),\ Theil's\ second\ index\ (\gamma = -1) \qquad (4)$$

where $p_i (= 1/n)$ is the i-th unit's population share, and $S_i^* = S_i / \sum_j S_j$. The degree of sensitivity to inequality at different parts of the distribution is defined by $\nu = -\gamma$, so the higher the absolute value the greater the sensibility to inequality in the tail of the distribution. In this sense, Atkinson (1970) pointed out the benefits of defining measures of the degree of sensitivity to transfers at different income levels because inequality measures that are dependent of the mean income are also invariant to proportional shifts. It is important to note that the degree of sensitivity to inequality at different income levels is also expressed as $\propto = -\gamma$ in many research papers, usually taking only positive values, as a negative $\propto$ would be '*undefined if there are zero incomes*' (Bellu and Liberati 2006). The most common values for this parameter are 0, 1, and 2. When $\propto = 0$, the GE measure (also called Theil's L, Theil's first index, or mean log deviance measure) is more sensitive to transfers at the lower end of the distribution. Therefore, in this study, higher levels of GE(0) will show

a situation when inequality results from very poor or deprived students compared to the rest in the same school. With $\propto = 1$ (also called Theil's T or Theil's second index), the measure is equally sensitive to changes across the whole distribution, thus, showing only disparities in the students' capital within schools (regardless of whether is due to very poor or wealthy students). Lastly, all the other higher values give more importance to the upper tail, showing inequalities as result of extremely wealthy students, compared to other students of the same school. Theil's first measure and second measure can also be described as[25]:

$$GE(0) = \frac{1}{n}\sum_{i=1}^{n} ln\left(\frac{x}{\mu_x}\right), Theil's\ first\ measure \quad (5)$$

$$GE(1) = \frac{1}{n}\sum_{i=1}^{n} \frac{x}{\mu_x} ln\left(\frac{x}{\mu_x}\right), Theil's\ second\ measure \quad (6)$$

Although the Generalised Entropy measures satisfy all the axioms of inequality measures, their main criticism refers to their interpretation. The idea behind GE measures is, as pointed out by Conceicao and Ferreira (2000), to measure the divergence between the structure of the income distribution across groups and the structure of the distribution of the people that integrates those groups. When groups receive the same income as their share of population, they do not contribute to GE, and thus, the index will have a value of zero if all groups have the share of income that matches their population. However, the upper limit is not bounded to 1 (like in the GINI coefficient), making its interpretation extremely difficult. Some authors have suggested the use of standardised GE measures by dividing the value of the GE and the maximum value for each member given any positive $\propto$, however, these relative indices do not respect all the axioms of inequality measures (Bellu and Liberati 2006). As mentioned above, for the purpose of this research, the inequality measures GE(0), GE(1), and GE(2) will be calculated using the factor scores resulting from the CFA. It is important to note that these measures will not be standardised, because the aim of this study is not the analysis of inequality within schools, but to examine how higher levels of these measures could be linked to changes in the frequency of perception of ASB.

[25] Bellu and Liberati (2006, 7) pointed out that these alternative expressions are based on the *l'Hopital* rule, where $\frac{d}{d\propto}\left(\frac{x}{\mu_x}\right)^{\propto} = \left(\frac{x}{\mu_x}\right)^{\propto} ln\left(\frac{x}{\mu_x}\right)$.

6.3 Multilevel Modelling

As shown in chapter 3, most studies about ASB in the school context have been based on the analysis of either student or school characteristics, and thus, most findings have shown just a partial picture of the effects of the different forms of capital. Therefore, an important part of this research is the analysis of the effect that individual and school level variables have on the perceived frequency of ASB of the students. Thus, this study departs from the assumption that not only the individual characteristics of the students play a role in shaping their behaviour, but also other social and environmental characteristics, including the different forms of capital that exist in the school context. Holistic or inclusive approaches such as the Ecological System theory developed by Bronfenbrenner (1979) have been common in many social disciplines such as education, where quantitative analysis have often explored data that contains information of students nested in classes or schools, and schools nested in districts (Dedrick et al. 2009). However, there is a lack of research based on an ecological approach that explores different problems in Mexican schools, and even in other areas of the world, few studies have used this method to explore ASB in the school context. Hence, this section has the purpose of exploring some elements of multilevel modelling (which will be used to analyse the perceived frequency of ASB of the students), as well as introducing the final model that will be used for the analysis of the relationship between the different forms of capital, their inequality, and the perceived frequency of ASB in schools.

As noted by Kaplan (2009), although large data surveys are usually based on random samples of the population, not all observations follow this assumption. Some linear models violate the assumption of uncorrelated error when they handle data that is clustered by one or more grouping variables; thus, their error term is not independent (Garson 2013). This means that the conclusions of those studies that do not take into account this hierarchical structure can often be misleading, as they do not truly capture the group level effect. Multilevel models are an extension of linear models that incorporate different levels into the model statement, classifying cases into groups, and thus, establishing a hierarchy in which some variables explain differences at the individual level while others at the group level (Gill and Womack 2013). Garson (2013) noted that these types of models receive a different name according to the discipline, including *'mixed effects'* models, '*hierarchical models*', '*covariance components'* models, and '*random coefficient regression models'*. In most social sciences, the

term *'multilevel modelling'* is used to allude to the fact that '*regression intercepts and slopes at the individual level may be treated as random effects of a higher level'* (Garson 2013: 4).

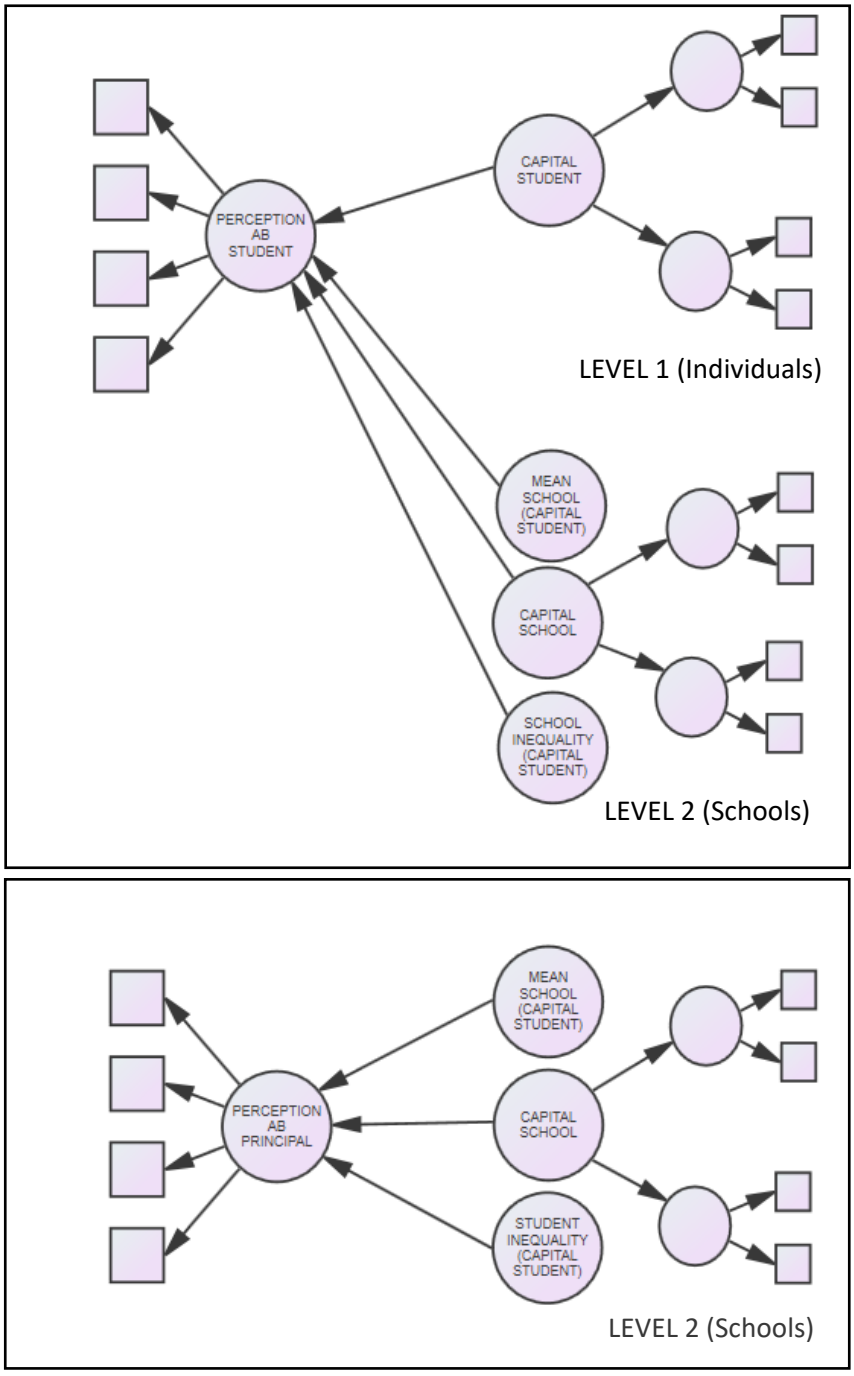


Figure 6.2: Structural Equation Models of the perceived frequency of ASB in schools

In practice, the model is differentiated from single-level regressions as it treats some coefficients of the explanatory variables as having a distribution, instead of being fixed. Hence, the information at the group level is used in a regression equation to describe the heterogeneity in the coefficients (Gill and Womack 2013). Yet, similar to the use of single-level models, analysing hierarchical data using only multilevel modelling can result in serious specification errors if the aim is to explore unobserved variables and the '*indirect and simultaneous effects within and across levels of the system'* (Kaplan 2009,134). Therefore, as the aim of this research is the analysis of latent constructs such as capital and the perceived frequency of ASB at different levels of analysis (i.e. individual and school level), a combination of both, SEM and multilevel modelling is required. In this sense, Mplus allows the estimation of multilevel structural equation models, establishing a model which assumes *'non-independence of observations due to cluster sampling'* (Muthen and Muthen 2011:7).

Figure 6.2 displays the models that will be used for the analysis of the relationship between the measures of the different forms of capital and their inequality, and the perceived frequency of ASB of the students and principals. The first thing that can be noted is that all the variables linked to the principals are at the same level of analysis because there is only one principal for each secondary school in Mexico (one answer of each principal per school), and thus, multilevel modelling cannot be used. Therefore, a single-level regression based on Ordinary Least Squares (OLS) will be employed to analyse the link between the measures of capital and inequality of the schools and the principals' perceived frequency of ASB. Yet, the students' model follows a hierarchical structure, where only the capital of the students and their perceived frequency of ASB are at the individual level, and the other variables are at the school level. Therefore, multilevel SEM will be used for their analysis, as part of the data of the students is clustered at the school level.

As stated in sections 5.4 and 5.5, PLANEA (INEE 2016) contemplated that its sampling frame could be used to make estimations for the entire population and for three core variables: type of school, size of locality, and state, without the use of weights because the proportion of the sample matched to some extent the real population. Yet, this research made an important assumption in relation to the lack of weights in multilevel models: that the sample of students was proportional to the real population of each school. This assumption was made because the guiding documents did not provide further information on this regard,

however, it must be taken into account as it could lead to some biases in the results. Additionally, as noted in section 5.5, two states were not including in the sample, and thus, this variable will not be included in the analysis, despite the sampling documents indicating that estimations for this variable could be calculated. This could also represent a limitation to this study, as these states are among the poorest in Mexico, as well as the ones with the highest proportion of indigenous inhabitants, and therefore, the results of this research will not contemplate this valuable information.

6.4 Conclusions

This chapter explored the statistical methods and elements that will be used in the analysis of the relationship between the forms of capital, their inequalities, and the perceived frequency of ASB in the school context. It was argued that Structural Equation Modelling was the best approach to analyse this problem, as it deals with some of the main technical and methodological challenges of wellbeing and inequality measures, including the integration measurement and structural models, the establishment of weights, and examination of variables at different level of analysis. Moreover, the use of the measurement model of SEM, which for the purpose of this study will be based on CFA, allows the operationalisation of theoretical concepts without reducing the complexity of any of their elements, allowing the assessment of every single element of the model. Mplus was chosen as the statistical package to carry out the analysis (L. Muthen and Muthen 2011), as it allows the calculation of both, the measurement and structural model, and also because it was designed especially in the SEM context, so it allows the inclusion of multilevel modelling and multiple group analysis.

It was also be noted that, as this research aims to contribute to the current discussion of the effects of poverty or deprivation over and above inequality, both measures will be integrated in the final model. In relation to the construction of the inequality measures, as presented in chapter 4, one of the biggest difficulties arise from the fact that traditional measures like the GINI coefficient were designed to measure the dispersion of income, and thus, they do not allow the measurement of the distribution of multidimensional elements. What is more, traditional measures emphasise only on middle earners, and thus, cannot show when inequality is linked to the distance at the top (very wealthy individuals) or at the bottom of the distribution (very poor people). Therefore, some aspects of Maasoumi's (1986, 1999)

approach to the measurement of inequality will be taken into account, including the calculation of a composite measure in the first step (to be calculated using CFA), to then measure the dispersion using Generalised Entropy (GE). Lastly, this chapter discussed the inclusion of a multilevel approach, as it is essential to this analysis because, as shown in chapter 4, the data of the survey follows a hierarchical structure, in which students are clustered within school (and there are variables at both levels). What is more, the use of the different levels of analysis will allow the analysis of the effect of individual and environmental factors together, which as discussed in chapter 3, has been rarely done in previous studies of the effects of capital and inequalities in ASB in schools. Hence, based on the elements presented here, the following two chapters will show mode details about the construction of the measures of the perceived frequency of ASB (chapter 7) and capital and inequality (chapter 8). As mentioned in chapter 5, although this research does not aim to analyse these elements in the school context, the results of these chapters will also contribute to the existing literature, as some important differences were found in all these measures, especially in relation to the type of school and size of locality.

Chapter 7: Measuring the Perception of Antisocial Behaviour in Mexican Schools.

7.1 Introduction

As discussed in chapter 3, several scholars have suggested the presence of severe problems of ASB in Mexican schools (Almaguer, Lozano, and Peña 2014; Blasco 2003; Caudillo and Torche 2014; Conde 2014; Furlan 2012; Prieto Garcia 2005); however, most studies lack empirical evidence as there is currently no official data or any other report that evidences this assertion at a national level. Therefore, those studies that have argued a connection between high levels of poverty or inequality and ASB in the school context are based only on a partial picture of the problem (as they have been carried out in particular settings), and thus, their results are either context specific or inconclusive. Using the methods described in chapter 6 (more specifically CFA), the purpose of this chapter is to create measures of the perceived frequency of ASB for both students and principals based on the data of the PLANEA survey (INEE 2016), which will be used in chapters 9 and 10 to explore their relationship with the different forms of capital and their inequalities (see chapter 8). As mentioned in chapter 5, this thesis cannot provide a prevalence based analysis of ASB in secondary schools in Mexico; nevertheless, the results presented here make an interesting contribution to the current literature in Mexico, as they show important differences in the perceptions of ASB of the students and principals in relation to the different types of schools, localities of different sizes, and the regions of the country.

The chapter is divided into two main sections. The first one presents a descriptive analysis of the variables contained in the PLANEA survey that are linked to the perceived frequency of ASB in the school context. The following section presents an overview of the steps taken in the construction of the measures of perceived frequency of ASB of the students and principals, followed by a descriptive analysis of these measures. Both sections examine the perceived frequency of ASB using the variables '*type of school*', '*size of locality*', and '*state*' for two reasons. The first reason is the fact that they allow the exploration of this problem in different environments, some of which were identified in chapters 2 and 3 for having important differences in crime and ASB (i.e. public and private schools, small and large localities). The second reason for using these variables to examine differences in perceived

frequency of ASB is because, as explored in chapter 5, these elements were used to defined the sample framework of PLANEA, and thus, it is possible to establish estimations for all subpopulations based on them without the use of weights (INEE 2016). The findings from this analysis suggest that students and principals from Public schools perceive there to be more ASB compared to students and principals of other types of schools. Additionally, it was found that those students and principals from the smallest communities and poorest regions perceived there to be less ASB compared to students and principals of other localities and states. However, principals of Private schools, were least likely overall to report ASB compared to those from any other type of school. These findings show that, in line with the findings of chapters 3, public schools and urban areas could have higher levels of perceived frequency of ASB, compared to other places. Yet, a more in depth analysis is necessary in order to understand the reasons behind this variation and why students and principals perceive different levels of ASB in their places of learning (although both measures are on different scales, they represent absolute values of perceived ASB and thus the comparison is in relation to the lack or absolute presence of these problems).

7.2 Variables associated with the perceived frequency of ASB in schools

As mentioned in chapter 5, PLANEA (INEE 2016) contains some variables that measure the perception that students and principals have about ASB in their schools. Even though the purpose of this research is the analysis of the relationship between the overall perceived frequency of ASB and different forms of capital and their inequality, it is important to first examine and understand the variables used for the creation of the measures of perceived ASB, which will be used later as dependent variables. Therefore, this section will present a brief descriptive analysis focusing on the differences in the perceptions of ASB reported by students and principals according to the type of school, size of locality and state in which they were located.

Figure 7.1 shows the answers to the question about the students' perceived frequency of ASB by type of school. As mentioned in the introduction of this chapter, the variable *'type of school'* was included in the descriptive analysis since it was a core element of the sampling design (INEE 2016), but also because some research has indicated striking differences in all types of capital mainly between Public and Private schools (Saravi 2015; OECD 2015;

Hernandez Esquivel 2015). The first thing to note is that students attending community schools perceived the least ASB of all types. Respondents from those schools were most likely to answer that these types of ASB never happened in their schools; ranging from 26 percent in respect of insulting to 66 percent for fighting. Correspondingly, community schools had the fewest respondents who said that ASB always happened, except for damaging furniture, for which they came second behind TV schools. Students attending TV schools were next more likely to say that ASB never happened across all categories except for fighting (in which private schools came second), and also had the second lowest share of students who considered that ASB always happened in their schools in all categories except for fighting (where private schools also came second).

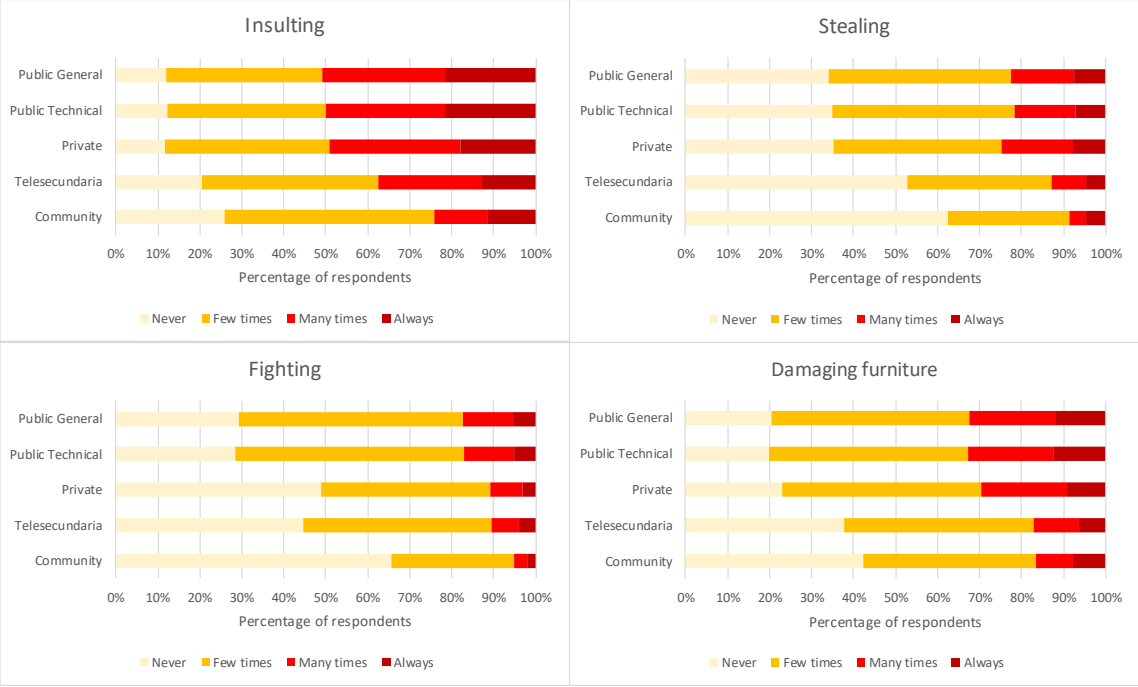


Figure 7.1: Perceived frequency of ASB in schools according to students, by type of school.

The fact that students from Community and TV schools had considerably lower levels of perceived frequency of ASB compared to students from the other type of schools is a very interesting finding because these types of schools are among the poorest in the country, and also a large number of them are in some of the most remote and isolated places in Mexico.

This could suggest that a higher perception of ASB is more of a problem in '*urban'* settings. On the other hand, Public and Technical schools had the highest proportion of students who perceived high levels of ASB across all types, except for stealing, where Private schools had the highest proportion of students who thought that this always happened. The vast majority of these types of schools are located in places with more than 2,500 inhabitants, suggesting again that higher levels of perceived ASB is more of a problem of urban areas. In all types of ASB, the patterns between Public and Technical schools were very similar. Overall, this could support the findings of chapters 2 and 3, where it was highlighted that Public schools had higher levels of ASB than Private schools; however, the fact that students from TV and Community schools (which are amongst the poorest in the country) had the lowest levels of perceived ASB raises questions about a simple economic explanation for higher rates of perceived ASB. Indeed, these figures provide support for the assertion that these problems could be better explained by non-economic factors or differences.

The principals' assessments about perceived ASB by type of school are displayed in figure 7.2. As indicated in chapter 5, the responses of principals from Community schools are not included in the results because they did not take part in the PLANEA survey. Nevertheless, like the students' survey, the highest level of perceived ASB was found amongst principals of Public and Technical schools[26]. The most relevant finding of figure 7.2 is the fact that the ASB was perceived less frequently among principals of Private schools, closely followed by principals of TV schools. More research would be needed to identify the reasons for these dissimilarities, including a more in-depth qualitative analysis of the principals of Private schools. Yet, one explanation for the low perceived frequency of ASB at private schools could be that students from more economically advantaged background are better behaved, as they usually follow a linear and continuous educational trajectory, allowing the formation of strong social ties (Saravi 2015). However, this would be confounded by the finding that principals at TV schools had similar perceptions and, as it has been discussed before, students in this type of schools are considerable less wealthy than those who attend other types of schools (and similar to some public schools of deprived urban areas, their students also could see their education disrupted due to their vulnerable condition). Thus, since TV

[26] Although these results suggest a similar pattern to the one observed among students, it is important to remember that the possible answers of both questionnaires are different, and thus, they should not be compared individually (with the exception of '*never'*).

schools are usually located in rural areas, the results could also indicate that economic capital could be relevant but only in urban settings (where most Public, Technical, and TV schools are located).

Figure 7.2: Perceived frequency of ASB in schools according to principals, by type of school.

Similar to the results by type of school, figure 7.3 displays the students' perceived frequency of ASB by size of locality. For all four variables, students of the smallest communities (i.e. those with less than 2,500 inhabitants) perceived there to be less ASB compared to the other students that live in larger communities. Students in mid-sized and large localities perceived

similar levels of ASB, although in the case of insulting and fighting, those in medium communities perceived slightly more ASB than students in cities, whereas for stealing and damaging furniture the students of largest cities had the highest perception.

Figure 7.3: Perceived frequency of ASB in schools according to students, by size of locality.

As shown in figure 7.4, the principals' perceived frequency of ASB showed very similar patterns, where principals of the smallest communities perceived the least ASB, while those in larger localities perceived more frequent ASB. Although the results in medium and large communities were very similar, principals of schools located in mid-sized communities perceived more frequent ASB, with the exception of damaging furniture. Both assessments of the perceived frequency of ASB could confirm the results of the analysis by type of school, where it was argued that a higher perception of ASB could be more of an urban problem, as the results showed that TV and Community schools had again the least frequent perceived ASB.

Figure 7.4: Perceived frequency of ASB in schools according to principals, by size of locality.

The next step of the descriptive exploration of the perceived frequency of ASB in schools involved analysing the differences between regions of the country. As mentioned in the chapter 2, Mexico is a highly divided country in which capital is spread unevenly between people of different backgrounds. This inequality is clearly represented by geographical differences, where the northern and central parts of the country are considerably wealthier than the south. In order to explore the frequency with which people in these regions perceive ASB (and possibly identify any pattern), figure 7.5 shows the percentage of students in each

state that perceived the different activities linked to ASB. As observed, the higher frequencies were coded together, so the results of this figure only show the percentage of students that perceived ASB in their school environment many times or always. The mean of all four variables was also included in the analysis, that is, the average of the percentages of each activity linked to ASB in each state. The states were ordered according to the average perceived frequency of ASB of their students, and the name in the bottom of the table includes the level of marginalisation according to the national classification (INEGI 2017).

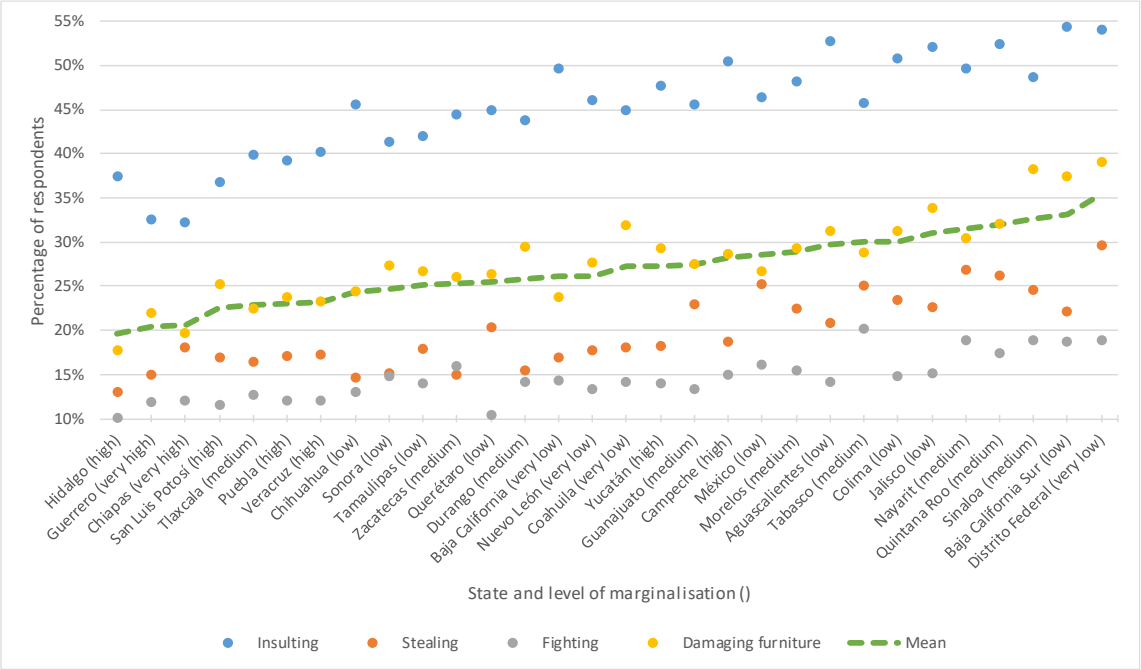


Figure 7.5: Perceived frequency of ASB (many times + always) in schools according to students by state.

Although all the variables linked to perceived frequency of ASB of the students had different patterns throughout the country, there was an apparent link between these variables and the geographical area (with some exceptions). First, it can be observed that there was a positive correlation, where states in which their students perceive high levels of one type of ASB tended to also perceive higher levels of the other three. The results also show that, in most cases, the states with overall high levels of marginalisation[27] (i.e. the most deprived)

[27] The level of marginalisation of each state is shown next to its name.

also perceived ASB less frequently and the least marginalised states (i.e. the wealthiest) had some of the highest levels of perceived frequency of ASB (also with some exceptions such as the northern state of Nuevo Leon). Although more research would be necessary in order to understand why this situation is happening, these findings suggest once again that some non-economic factors are better in explaining the perceived frequency of ASB than those linked to economic capital. Furthermore, these results are in line with patterns shown in the analysis by type of school and size of locality, where it was found that students of Community and TV schools and the smallest communities had also the lowest perceived frequency of ASB, as states with the highest levels of marginalisation are also less urbanised and developed.

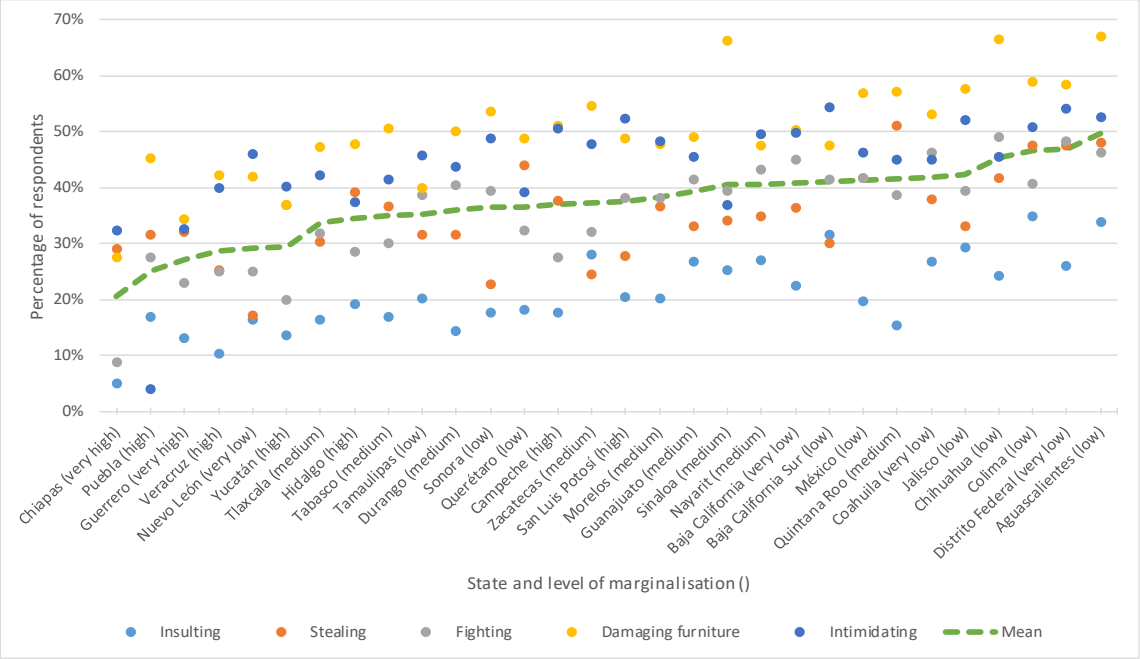


Figure 7.6: Perceived frequency of ASB (at least once a month + once a week) in schools according to principals by state

In relation to the perception of principals' by state shown in figure 7.6, two important findings can be observed; the first one is the fact that there seems to be a less evident distinction in the pattern that each one of the variables follow, or in other words, there is more variation in the perceived frequency of ASB of the principals by state in relation to the

most frequent behaviour. The second point to highlight from this graph is the fact that the level of marginalisation does not seem to be correlated to the perceived frequency of ASB, so there was not any marked pattern as the one observed in the analysis of the students' perception. Therefore, these results could indicate that the levels of poverty and deprivation of the different regions of the country could be an important predictor of the perceived frequency of ASB (decreasing the perception) but only for students, and that other elements must be taken into consideration in order to understand differences in the perceived frequency of ASB of the principals. However, it is also important to note that there were considerably less principals than students in the sample of the survey (and thus these differences may be related to the lack of responses).

The figures presented in this section showed that there is a marked difference in the perceived frequency of ASB of students and principals in relation to the types of schools, localities of different sizes, and states. One of the most important findings of this section, is the fact that students and principals of Community and TV schools, and the smallest localities had amongst the lowest levels of perceived frequency of ASB, suggesting that some non-economic factors could explain better the variation in the perceived frequency of ASB (as these types of schools and localities are amongst the poorest). Although looking at the different types of ASB in schools is of interest, the purpose of this research is to examine the aggregate frequency of ASB as perceived by students and teachers, rather than each type of ASB. Thus, the next section will discuss in more details the construction of the measures of the perceived frequency of ASB using CFA. As discussed in chapter 6, this technique seems to be the best approach for this research, not only because it deals with many methodological issues such as the use of weights and calculation of individual and school scores, but also because the measures for the different forms of capital will be calculated using this technique.

7.3 Constructing an aggregate measure of perceived frequency of ASB.

As highlighted in chapter 4 and 5, the construction of measures for some of the core concepts of this research carries some theoretical and methodological challenges, especially because these elements cannot be measured or observed directly in real life. Therefore, it was argued that a dimensionality reduction technique that allowed the measurement of latent

constructs based on observed variables was necessary. This means that instead of using proxies for each of the forms of capital and for the perceived frequency of each ASB to examine their relationship, new variables that capture the aggregate effect of these problems were constructed. These methods are also the best option when there is no previous information about the link between the observed and unobserved variables, as they allow '*the estimation of the implicit value of the weights*' (Aaberge and Brandolini 2014, 23). Confirmatory Factor Analysis (CFA) was chosen mainly because this method was theory driven, which means that allowed the construction of theoretically supported concepts instead of '*fishing in data*' (Walker 2015, 4). What is more, this method seemed more appropriate because it has been suggested as the best approach for the calculation of the capital scores that will be used as independent variables[28]. As mentioned above, CFA reduces all the observed variables in terms of unobserved variables or latent constructs using covariance matrices to compare hypothesised and data driven models. It is important to mention that the analysis was conducted using the software MPlus (B. Muthen 1998), as it is an specialised software that supports CFA, SEM, and the analysis of multiple groups.

Table 7.1: CFA Student's perceived frequency of ASB

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Other students fight	1.135**	0.744**	0.554
Other students steal	1.057**	0.692**	0.479
Other students damage furniture	1.050**	0.688**	0.473
Other students insult	1	0.655**	0.429
Student Perceived frequency of ASB	**0.429****	**1**	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 144,057
Fit indices: Chi-square= 232.897 with 2 df, p=0.000, RMSEA= 0.029, CFI=0.999, TLI=0.997. ** p<0.01, * p<0.05.

Table 7.1 displays the results of the CFA for the perceived frequency of ASB as measure for the students, which includes the coefficients and standardised coefficients, p-value and

[28] Other dimensionality reduction techniques were used to calculated measures of antisocial behaviour, including Principal Component Analysis, and Exploratory Factor Analysis, suggesting a similar result.

estimated R-squared of each observed variable, and the coefficient, standardised coefficient and p-value of the latent construct. It is important to remember that in the *'coefficient'* column (which is the default outcome in Mplus), the results show the regression coefficients from the regression of the indicators on the latent variable, which in this case is the first observed variable and not the perceived frequency of ASB.. Therefore, to identify the model a value of 1 is assigned to '*insulting*' but not to the other types of perceived frequency of ASB. For further considerations, only the standardised coefficients will be examined because this shows the relationship between the observed variables and the latent construct (i.e. the perceived frequency of ASB, which is set at 1). As noted, all four activities linked to the perceived frequency of ASB reported by the students are significant, and have similar factor loadings (standardised coefficient), varying from 0.655 for insulting to 0.744 for fighting. All the fit statistics demonstrate that this is an adequate model to measure the perceived frequency of ASB. The results suggest that out of those four elements linked to the students' perceived frequency of ASB, fighting is the strongest indicator of the latent construct, with an R-squared of 0.554, that is, 55.4 of the variation in the students' perception of fighting is explained by the latent construct '*student perceived frequency of ASB'*. On the other hand, the variable with the weakest correlation with the unobserved variable was insulting, with an R-squared of 0.429.

Table 7.2: CFA Principal's perceived frequency of ASB

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Students intimidate or threaten other students	1	0.852**	0.726
Students fight with other students	0.986**	0.840**	0.706
Students damage furniture	0.925**	0.788**	0.621
Students insult teachers	0.915**	0.780**	0.608
Students steal	0.898**	0.765**	0.586
Principals' perceived frequency of ASB	**0.019****	**1**	

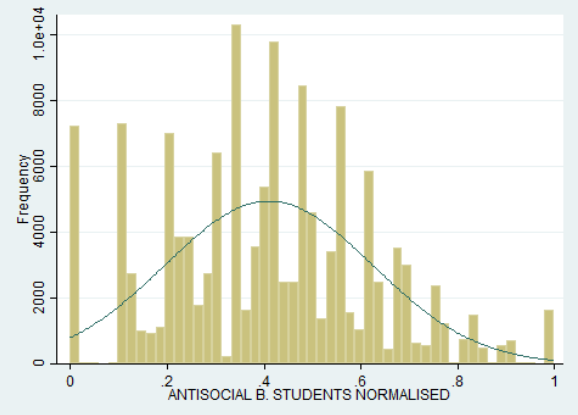
Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529
Fit indices: Chi-square= 221.835 with 5 df, p=0.000, RMSEA= 0.116, CFI=0.990, TLI=0.980. ** p<0.01, * p<0.05.

Table 7.2 shows the results of the CFA for the principals' perceived frequency of ASB. Similar to the students' results, all the fit statistics reflected the validity of the model, and the p-value of all the unobserved variables show that they were statistically significant. Intimidating or threatening was the strongest indicator of the principals' perceived frequency of ASB, with a standardised coefficient of 0.852 and an R-squared of 0.726. Although all the variables linked to the principals' perception had a strong correlation with the latent variable, the weakest association was for the perception of stealing, in which the model predicted 58.6 percent of its variability. The resulting factor scores of both CFA (i.e. students and principals) will be used for further exploration of the perceived frequency of ASB in the school context because they measure the individual level of perceived ASB, that is, the latent constructs for each student and principal. It can be noted that the factor scores result from the loading that each factor had on the variables of the students' and principals' perceived frequency of ASB, and thus, they already take into account specific weights for each observed variable.

Because the students' scores range from -1.043 to 1.521 and the principals' from -1.256 to 2.154, both measures were normalised, so their resulting value ranges from 0 to 1. This decision was taken for two reasons; the first one is the unification of factor scores throughout the analysis, as capital measures require only positive numbers[29], and thus, normalising them was the best approach. The second reason is linked to their interpretation; the original results cannot be easily examined as negative numbers do not reflect negative perception or worse perception. On the contrary, the lowest scores are associated to those students and principals with the lowest perceived frequency of ASB; hence, a scale from 0 to 1 is more convenient. In this sense, 0 will denote a null perception of the problem, and 1 those individuals with the highest perception (i.e. those students that always see all these problems in their schools and principals who experience all of them at least once a week).

[29] It is necessary that the measures of capital take only positive values to satisfy the axioms proposed for inequality measures, as most measures are based on the distribution of a positive continuous measure (i.e. income). See section 4.3.3.

Students' perceived frequency of ASB



Principals' perceived frequency of ASB

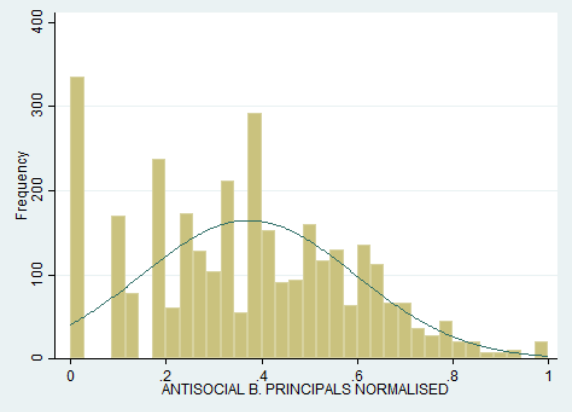


Figure 7.7: Distribution of measures of perceived frequency of ASB.

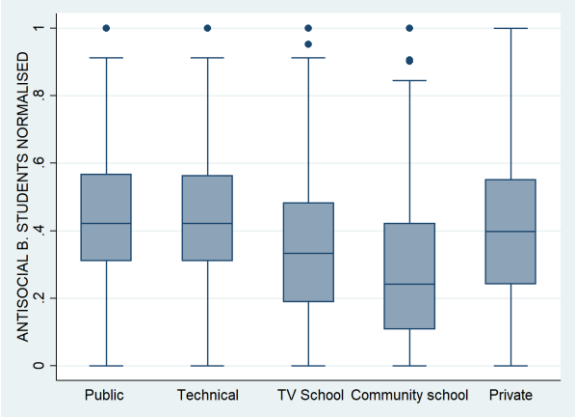
Figure 7.7 shows the distribution of the normalised measures of perceived frequency of ASB, in which it can be observed the frequency of each value of the factor scores. In this sense, 7,218 students had a score of 0, which means that 5.31 percent of the total number of students in the PLANEA survey did not perceive any ASB among their fellow classmates. On the other hand, 1,655 of them had a score of 1, which is the highest value of the measures of perceived frequency of ASB, representing 1.22 percent of the students who always perceived all the activities linked to ASB in their school. The scores of the principals show that a large proportion of them did not perceive any of the activities associated with ASB among the students in their schools, as 335 of principals had a score of 0, representing 10.39 percent of the total. The proportion of principals that saw all these activities at least once a week was

very low, with just 20 of them having the maximum score of 1, which is only 0.62 percent of the total number of principals. Overall, the values of both measures seem to be slightly skewed to the left hand-side of the graph, which suggest that although most students and principals perceive some ASB in their schools, their perception about the problem is not very frequent (i.e. behaviour in Mexican schools as perceived by principals is typically good). The results of both scores are within normal parameters (students' distribution: skewness 0.196, kurtosis 2.811; principals' distribution: skewness 0.154, kurtosis 2.494).

In order to analyse the differences between the types of school, the means of both scores were compared using the Analysis of Variance (ANOVA). The results showed that the differences between the means of all the types of schools were significant, with the exception of Public and Technical schools, in which the model identified that the difference was not statistically significant. Figure 7.8 displays the boxplots of the perceived frequency of ASB by type of school, where it can be noted that the results are similar to the ones observed in the descriptive statistics, where on average, students of Community and TV schools have the lowest perceived frequency of ASB, and those in Public and Technical schools have the highest. Accordingly, the largest difference was observed between students of Public and Community schools, with the latter having on average a score 0.167 lower. However, the results of the ANOVA showed that the type of school was not a good predictor of the students' perceived frequency of ASB, as the R-squared was only 0.048, suggesting that only 4.8 percent of the variation in this measure was explained by the type of school.

In relation to the means of the principals' scores by type of school, the results of the Analysis of Variance showed that the differences between two groups of schools were not statistically significant: Public and Technical schools, and Private and TV schools. Furthermore, as displayed in figure 7.8, the results show that principals of Public schools also had the highest perceived frequency of ASB; and principals of Private schools had the lowest perception. There was an important difference between the scores of these two types of school (0.228), and as revealed by the R-squared, this model was a better predictor than the students' one, as the type of school explained 23.1 of the variation of the principals' perceived frequency of ASB.

Students' perceived frequency of ASB



Principals' perceived frequency of ASB

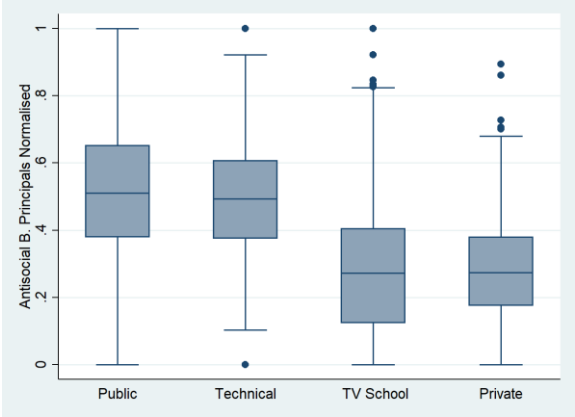
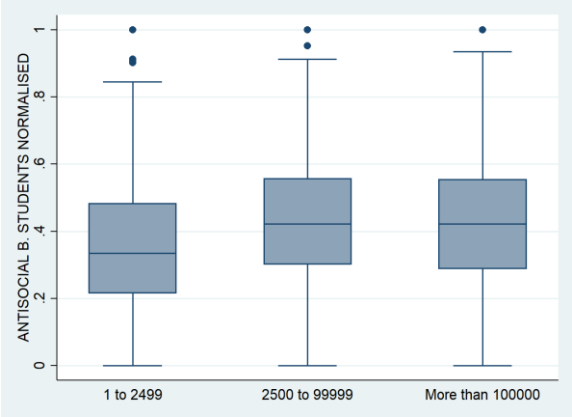


Figure 7.8: Boxplots of the perceived frequency of ASB by type of school.

Figure 7.9 shows the boxplots of the perceived frequency of ASB scores by size of locality, where it can be observed that students of the smallest communities perceive, on average, less ASB compared to those from larger localities. However, the difference between the students from localities with less than 2,499 inhabitants and those in medium communities (which showed the highest levels of perceived frequency of ASB) is very small (only 0.079). Furthermore, although the descriptive analysis suggested that the size of the locality was a strong predictor of the students' perceived frequency of ASB, the results of the ANOVA of the students' overall scores showed that only 2.7 percent of their variation was explained by this variable. The results also showed that there is not a statistically significant difference between the mean of medium and large localities.

The analysis of the principals' score by size of locality showed that the effect of this variable on the perceived frequency of ASB was larger compared to students, however, it remained relatively small, with only 13.1 percent of the differences in the perceived frequency of ASB of the principals being explained by the size of locality. Similar to the students' score, the difference between the means of medium and large communities was not statistically significant either, and the lowest perceived frequency of ASB was also among principals of the smallest communities. The difference between the means of communities with the lowest perception (small (0.290)) and those with the highest (medium communities (0.463)) was higher than the students' score, with 0.173.

Students' perceived frequency of ASB



Principals' perceived frequency of ASB

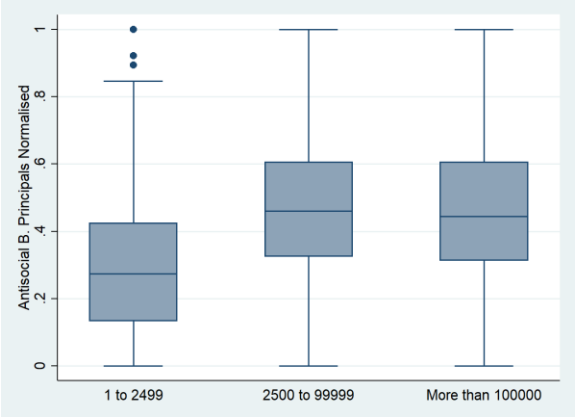
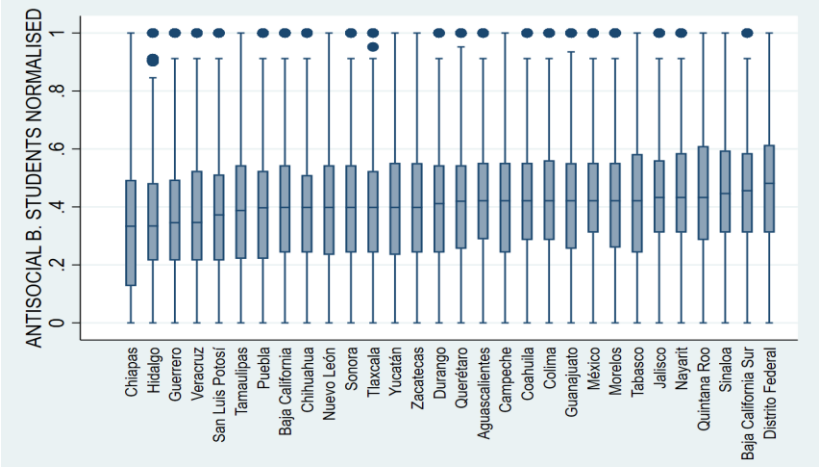


Figure 7.9: Boxplots of the perceived frequency of ASB by size of locality.

Lastly, figure 7.10 displays the boxplots of the measures of the perceived frequency of ASB of the students and principals by state. The results in the boxplots show that the perceptions of ASB of both, the students and principals, seem to be connected with the level of marginalisation, compared to the descriptive analysis where only a pattern was found for the students' perceived frequency of ASB. In the results of figure 7.10 it can be observed that some of the states with the highest level of marginalisation (the poorest) show lower levels of perceived frequency of ASB compared to wealthier states (level of marginalisation showed in figures 7.5 and 7.6). For instance, the analysis of the students' score showed that the state with the lowest mean was Chiapas, with 0.335. This southern state is the poorest in the country and also has the highest proportion of indigenous population. On the other hand, Mexico City (Distrito Federal), which is the wealthiest city in the country, had the highest mean in the students' perceived frequency of ASB, with an average score of 0.469. In a similar way, in the principals' boxplot can be observed that Chiapas has the second lowest mean and Mexico City the second highest. However, although the results of figure 7.10 suggest a geographical pattern, the ANOVA showed that the effect is very small, and only 2 percent of the variation in the students' perception and 5.2 percent in the principals' score is explained by differences between states.

Students' perceived frequency of ASB



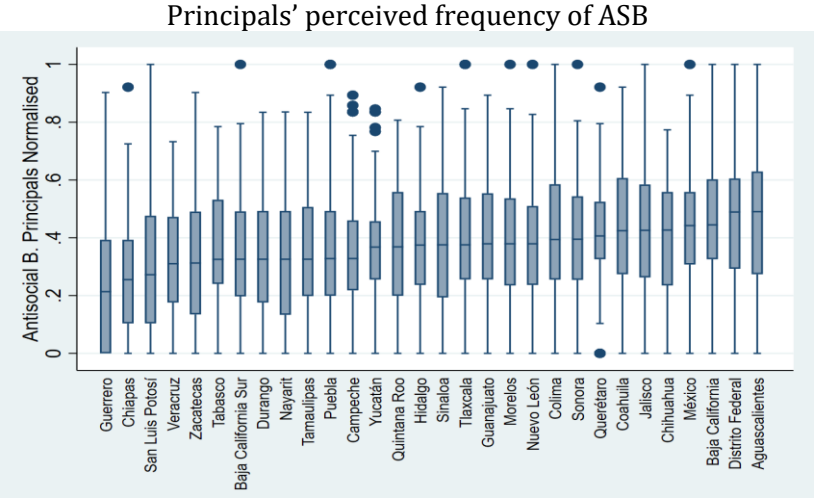


Figure 7.10: Boxplots of the perceived frequency of ASB by state.

Finally, figure 7.11 shows the variation of the students' perceived frequency of ASB among all the schools that took part in the survey, showing two very important elements of this research: the school effect that confirms the use of multilevel modelling , and the variation in the students' perception of ASB within each school, which indicates important differences between the students of each school. In figure 7.11, the black line indicates the mean of the scores across all the schools, the blue line the mean value for each one of the schools, and the red dots the individual score of each student. It can be noticed that, in most cases, the mean of each one of the schools that took part of the survey is significantly different from the sample mean (0.379), thus indicating the importance of the school effect. The between school variance, that is, the variation that exists between the scores of the students in different schools, is 0.010, and the within school variance, which shows the variation in the scores within schools (or between students of the same school), is 0.037.

The Intra-class Correlation is 0.224, which means that 22.4 percent of the variation in the score of the students' perceived frequency of ASB can be attributed to differences between schools (i.e. school effect). Therefore, most of the variation in the perceived frequency of ASB is actually attributed to differences within schools, that is, the individual characteristics of the students. In this sense and as pointed out in section 5.6.1, some studies suggest that those who perceive higher levels of ASB are more likely to have experienced ASB (Budd and Sims 2001; Flatley 2017; Upson 2006; Wood 2004) or have been involved in ASB (Laufer

and Harel, 2003). Hence, although possible explanations for the large variation in the students' perceived frequency of ASB within schools are beyond the scope of this thesis, this variation could be attributed to the personal experience of each student, and thus showing actual levels of ASB in each school.

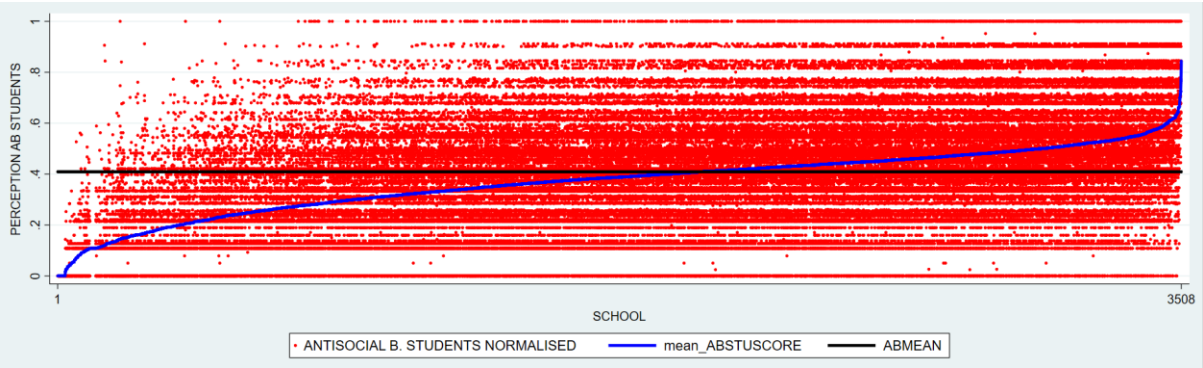


Figure 7.11: Variation of the student's perceived frequency of ASB between schools.

This section has argued that the use of Confirmatory Factor Analysis is the best approach for the construction of the measures of the perceived frequency of ASB in schools, as it deals better with some methodological and theoretical issues than other techniques. Moreover, it was the best possible approach because other variables that will be part of the final model of this research were also calculated using CFA. Following this technique, individual factor scores for the perception of students and principals were calculated, then normalised, and finally analysed using the variables *'type of school'*, *'size of locality'*, and *'state'*. The normalisation of these variables means that those individuals that do not perceive any ASB in their school context were assigned a value of 0, and those with the highest possible perception had a value of 1. The results by type of school and size of locality confirmed some of the results of the descriptive analysis, in which students of Community and TV schools, and principals of Private schools had the lowest average score measuring the perceived frequency of ASB measures, and the mean of both measures was the lowest in the smallest communities.

On the other hand, Public and Technical schools and medium size communities had the highest levels of perceived frequency of ASB. However, as shown in the results of the

Analysis of Variance, the effect of the variables '*type of school*' and *'size of locality'* on the measures of the perceived frequency of ASB was very small in the case of the students, and small-moderate for the principals. The analysis by state showed that some of the poorest and most marginalised states of the country have the lowest average in the measures of the perceived frequency of ASB, and accordingly, some of the wealthiest ones had the highest mean in both scores. Yet, similar to the analysis by type of school and size of locality, the results of the ANOVA suggested that this relationship is very small, as it explained only between 2 and 5.2 percent of the variation in the perceived frequency of ASB scores. Finally, it was shown that there is an important variation in the student's perceived frequency of ASB between and within schools, where in most cases the mean of each school is considerably different from the average of the score across all the schools (justifying the use of multilevel modelling), and in which the differences in the individual perception could be linked to the own characteristics of each student, including their actual experience of ASB.

7.4 Conclusions

Using key variables from the questionnaires of the PLANEA survey, this chapter explored the way in which students and principals perceived the frequency of ASB in their schools. Although the main purpose of the chapter was the construction of measures of the perceived frequency of ASB that will be used as dependent variables of the final analysis of the thesis, the findings presented in this chapter can contribute to the existing literature in Mexico, as important differences were found in the way students and principals perceived this problem in relation to the type of school, size of locality, and state. In this sense, the descriptive analysis presented in the first part of this chapter examined the frequency with which students and principals perceived certain types of ASB to occur in their school. In the analysis by type of school, size of locality, and state, it was found that the perceptions of students and principals of the frequency of different types of ASB showed similar patterns. For instance, in the results for Public and Technical schools, both students and principals perceived there to be more ASB compared to those in other school types. Interestingly, principals of Private schools had by far the lowest perceived frequency of ASB across all types of behaviour, which could possibly indicate a biased reporting by either principals or pupils, as students of this type of school did not have the lowest perceived frequency of ASB.

In this sense, students of Community and TV schools had the lowest levels of perceived frequency for all types of ASB. The results also suggested that both students and principals in the smallest communities perceived there to be less ASB than those from larger localities. In relation to the analysis by state, the results suggested that students from the most marginalised states (i.e. the poorest) had perceived there to be the least frequent ASB and those in the wealthiest states the most. Although there is not a straightforward explanation for this situation, it could indicate that some non-economic elements are better in explaining this problem, yet, more research is necessary to confirm this point.

In the second part of the analysis, Confirmatory Factor Analysis (CFA) was used as a dimensionality reduction technique, allowing the measurement of the perceived frequency of ASB using only one measure (which will be used as dependent variable in the final models of this thesis). This method is argued to be more appropriate than others as it reduces all the observed variables in terms of the latent construct, allowing the measurement of theoretical concepts in terms of data driven models. What is more, this was the best approach in the context of this research as it allows consistency throughout the study (as measures of capital were also calculated using CFA) and the resulting normalised measures are easily interpretable (0 shows a lack of perceived frequency of ASB and 1 when individual always perceive ASB in schools). Using these measures, the students' and principals' perceived frequency of ASB was analysed also using the variables *'type of school'*, *'size of locality'*, and *'state'*. The comparison of means and Analysis of Variance (ANOVA) showed that, although the differences between the types of school and localities of different size were similar to the descriptive analysis, they only explained 4.8 and 2.7 percent of the variation in the students' overall score, respectively. Yet, in the case of the principals, the results from the ANOVA showed that these variables were better predictors of the perceived frequency of ASB, as the type of school explained 23.1 percent and the size of locality 13.1 percent of the variance. Lastly, the results of the perceived frequency of ASB scores by state showed that on average, the means of both, the students and principals, were higher in the wealthiest states and lower in those with the highest levels of marginalisation (i.e. the poorest). However, the ANOVA also showed that these effects were very small, and only 2 percent of the students' perception and 5.2 of the principals' scores were explained by differences between states.

Overall, the results of this chapter confirm the use of a more inclusive approach that takes into consideration several elements and characteristics of individuals and their environment in order to explain social processes and problems, including the perception of ASB. In this sense, although contextual factors such as type of school, size of locality, and state could be important to explain some differences in the perceived frequency of ASB of students and principals, they do not fully explain the distribution of these problems. What is more, the fact that some types of schools and states that are considered more economically disadvantaged had some of the lowest perceived frequency of ASB, could also confirm the findings of chapter 3 in relation to the use of a multidimensional approach that takes into consideration economic and non-economic characteristics. In this sense, as discussed in chapter 4, the forms of capital of Bourdieu (1986) provide an important framework to analyse the economic, social, and cultural capital of students and their schools, as they capture most of the elements that previous studies have linked to ASB. Therefore, before proceeding with the analysis of the relationship between the forms of capital, their inequality, and the perceived frequency of ASB in the school context, the following chapter will discuss the main elements used for the construction of the measures of capital and inequality, at the time that will provide an examination of these measures in line with the analysis presented in this chapter.

Chapter 8: Measuring capital and inequality in Mexican schools

8.1 Introduction

As discussed in chapter 4, '*traditional*' measures of poverty and inequality have been based mainly on economic capital, especially income; and thus, most research has departed from the idea that somehow the needs of individuals depend directly on money, or that income thresholds can be used to determine the quality of life for individuals. However, this idea has been widely criticised in recent years because many characteristics and needs do not depend directly on income, including access to some public services (i.e. health and education) and the benefits of social networks and cultural assets. Similarly, as shown in chapter 3, although several social problems, including crime and ASB, have been linked to either economic poverty or economic inequality, several non-economic elements seem to better predict such problems. Therefore, before making any conclusions about the effects of poverty or inequality, it is important to consider a more inclusive framework that incorporates all these aspects. Hence, applying the methodological approach used for the construction of the measures of perceived frequency of ASB presented in chapter 7, this chapter will focus on the construction and analysis of multidimensional measures of the economic, social, and cultural capital of students and schools in Mexico, followed by the creation of inequality measures in these forms of capital.

As noted in chapter 7, PLANEA (INEE 2016) contemplates different variables associated with the economic, social, and cultural capital of the students and principals of secondary schools in Mexico. These variables connected to assets, perceptions, and characteristics of the students and schools are used in this chapter to create individual scores to quantify these forms of capital. It is important to remember that these measures are an essential part of this research because they are used as independent variables in the analysis of the relationship between the different forms of capital, their inequality, and the perceived frequency of ASB in schools. The chapter is divided into four different sections: the first three aimed to analyse and create measures for each of the forms of capital introduced by Bourdieu (1986) and their inequality, and the fourth provides a brief examination of the relationships between them. It is important to note that because all the measures were

constructed using the same rationale, only the section related to economic capital included a more detailed explanation of the methodology and the reasons behind the use of specific statistical methods and measures such as CFA, GINI coefficients, and GE Indices. The last section of this chapter, that is, the one that examines the relationships between economic, social, and cultural capital is divided in two subsections. First, the relationship that exist between the different forms of capital of the students is explored using multilevel modelling, because, as mentioned in chapter 6, the students' data follows a hierarchical structure where students are clustered within schools. The second subsection of this chapter shows an analysis of the relationships that exist between the economic, social, and cultural capital of the schools using a single-level regression, as all the variables linked to them are at the same level of analysis (i.e. only one principal per school answered the survey).

From a methodological point of view, this chapter showed that the factor scores resulting from CFA were appropriate to construct measures for the three forms of capital, mainly because they allow the incorporation of different elements into each latent construct without making any assumption about their importance (as weights were established according to their own relationship with the latent construct). Similarly, it was demonstrated that inequality measures based on Generalised Entropy measures are more useful in the context of this research, as they allow the exploration of the inequality in each of the forms of capital that results from disparities at different parts of the distribution. From a theoretical point of view, this chapter showed the importance of using a multidimensional approach in the analysis of capital in the school context, especially Bourdieu's (1987) concept and division of capital. In this sense, the results of this chapter showed significant differences between the economic, social, and cultural capital of the students and schools in Mexico, suggesting that as noted by Bourdieu (1987), the distribution of capital is what defines the social space, and thus, can be used to explain differences in any particular universe.

From a substantive point of view, this chapter showed that there are major differences in the economic (i.e. assets at home and infrastructure in schools) and cultural capital (i.e. benefits linked to cultural goods, activities, and education) of the students and schools according to the type of school, size of locality, and geographical place. Community schools, which are attended mainly by indigenous students, and TV schools, located in remote places,

had the lowest levels of economic and cultural capital, whereas Private schools had the highest levels. Students and schools in the smallest communities had on average lower levels of both forms of capital, compared to middle and large localities. The results of this chapter also showed an interesting geographical pattern, where the relatively wealthier northern and central states had higher levels of economic and cultural capital, contrasting with the lowest levels in both forms of capital found in the south of the country (which is the most deprived region). Lastly, differences between the different types of schools, localities, and states in social capital (which is mainly linked to the social connections of students and the school social environment) were very small or null.

In relation to inequality in the students' economic and cultural capital, the results of this chapter showed that Community and TV schools, and the smallest localities were also more unequal compared to Private schools and the largest cities. In addition, it was found a similar geographical difference as the one found in the analysis of economic and cultural capital, where the southern part of the country had higher levels of inequality than the central and northern states. There were not important differences in the social capital of students and schools between the different types of schools, localities, and states. Lastly, it was found that there was a strong school effect in all the forms of capital of the students, especially in the case of economic and cultural capital. Additionally, there was a marked association between these two forms of capital in both, the students and schools' scores, contrasting with social capital, which showed a very small or null link with the other forms of capital.

8.2 Economic capital and inequality

As highlighted in chapters 4 and 6, many scholars have pointed out the multidimensional nature of economic poverty and inequality (Atkinson and Bourguignon 1982; Maasoumi 1986, 1999; Sen 1995, 2001b; Tsui 1995, 1999); however, there is not a consensus about the best way in which these concepts can be measured. For instance, nowadays there is an inconsistent classification of the so-called *'poverty line'*, a measure that establishes who is considered as poor and who is not, and which varies by country. Thus, many researchers tend to focus only on the analysis of those who are considered *'poor'*, while overlooking the characteristics and elements associated to those who do not fall into this category. Therefore, it is common to find studies that make generalisations about the nature and

consequences of poverty. Similarly, the use of measures such as the GINI index, have generated a conceptualisation of inequality based on income disparities and heavily dependent on middle earners, and therefore, very little is known about the nature and effects of the unequal distribution of other economic and non-economic resources.

Hence, this section aims to introduce some of the main elements used for the construction of the measures of economic capital and its inequality, as well as a brief analysis of the differences between students and schools in Mexico. This section will begin by describing how the measures of economic capital were constructed using CFA, to then explain the main steps used to create inequality measures based on GE. It is important to note that although as stated in chapter 6, Generalised Entropy measures will be used in the rest of this research, other inequality measures were included in this section with the purpose of validating their use and comparing results. This section will finish with an exploration of the measures of capital and inequality based on differences between various types of schools, localities, and states.

8.2.1 Construction of economic capital measures

The descriptive analysis of the variables linked to economic capital presented in chapter 5 showed some dissimilarities that exist between students and schools in Mexico, yet, for the purpose of this thesis it is necessary to create measures of the aggregate level of capital of each student and school. Hence, the purpose of this section is the creation and analysis of measures of economic capital, which will be used in the final models of this research to analyse their link to the perceived frequency of ASB. The first step for the construction of the measures consist on calculation of the factor scores for each student and school using Confirmatory Factor Analysis, as this technique evaluates how well the data fits with the hypothesised constructs of economic capital, while giving different weights based on their own relationship to the capital[30]. As mentioned before, CFA allows the measurement of

[30] Measures of economic capital and its inequality were also calculated using the '*counting approach*' (sum of assets in one index). Although this approach offers the simplest and quickest solution, it does not discriminate among the different variables used in the construction of indices, that is, equal weight is given to all the attributes, resulting in inaccurate results. Furthermore, the analysis showed that CFA was better model since it explained more variance in the analysis by type of school, size of locality and state.

latent constructs or unobserved variables while considering the way in which the different variables contribute to it according to their own estimated relationship or factor loading.

Table 8.1: CFA Student economic capital

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Internet	1.53**	0.907**	0.823
Computer	1.421**	0.843**	0.71
Refrigerator	1.348**	0.799**	0.639
Gas	1.334**	0.791**	0.626
Washer	1.303**	0.773**	0.597
Microwave	1.269**	0.752**	0.566
Home Phone	1.201**	0.712**	0.507
Television	1.155**	0.685**	0.469
Car or van	1.131**	0.67**	0.449
Pay TV	1.055**	0.626**	0.391
Electric Light at home	1	0.593**	0.352
DVD or Blu-ray	0.923**	0.548**	0.300
Economic Capital Student	**0.352****	**1**	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 144,057
Fit indices: Chi-square= 25,950.960 with 54 df, p=0.000, RMSEA= 0.059, CFI=0.965, TLI=0.957. ** p<0.01, * p<0.05.

The results of the CFA of the students' economic capital are shown in table 8.1, in which the coefficients, standardised coefficients, p-values, and R-squared are reported for each variable. For further analyses, only focus the standardised coefficients will be discussed because, as mentioned in chapter 7, they reflect the correlation that exists between each one of the attributes and the latent construct, compared to the unstandardized coefficient in which this relationship is set at 1 for the first variable. The results show that the strongest indicator of the economic capital of the students is access to internet, where 82.3 percent of the variation of this variable is explained by the latent construct in the model (R-squared 0.823). The coefficient shows that an increase in one unit (or when students have the maximum score in the measure of economic capital) is linked to an increase in 0.907 units of the variable '*internet*'. The second strongest indicator of the economic capital of the students is having a computer at home, with an R-squared of 0.710. The variables that have the strongest association with the measures of economic capital are amongst the least

frequent in the students' households, and thus, this could suggest that only the wealthiest students possess these assets. On the contrary, some of the most frequent assets showed a weaker association with the measure of economic capital. For instance, the variable with the weakest relationship with the latent variable is the one linked to the ownership of DVD or Blu-ray, for which the model explains only 30 percent of the variance, followed by Electric light at home, and Pay TV.

Table 8.2: CFA School economic capital

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Computers	1.785**	0.943**	0.889
Water for toilets	1.303**	0.688**	0.474
Books	1.292**	0.682**	0.466
Video devices	1.252**	0.661**	0.437
Toilet for girls	1.243**	0.657**	0.431
Toilet for boys	1.226**	0.647**	0.419
Desks	1.171**	0.619**	0.383
Drainage	1.125**	0.594**	0.353
Toilet for adults	1.116**	0.59**	0.348
Patio	1.056**	0.558**	0.311
Electricity everyday	1.053**	0.556**	0.309
Sufficient water	1.018**	0.538**	0.289
Fence	1	0.528**	0.279
Classroom	0.886**	0.468**	0.219
Water from public network	0.862**	0.455**	0.207
Blackboard or white board	0.800**	0.423**	0.179
TVs	0.698**	0.368**	0.136
Electricity from public network	0.655**	0.346**	0.120
Economic Capital School	***0.279****	***1***	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529
Fit indices: Chi-square= 4,115.556 with 135 df, p=0.000, RMSEA= 0.096, CFI=0.708, TLI=0.669. ** p<0.01, * p<0.05.

Table 8.2 shows the results of the Confirmatory Factor Analysis of the latent construct '*School economic capital*', which includes all the variables linked to the schools' infrastructure and equipment. Similar to the economic capital of the students, the least frequent infrastructure and equipment in the schools had amongst the strongest association

with the economic capital of the schools, while the most frequent had a considerably weaker association. The variable '*computers*' has the highest coefficient or factor loading, and thus, it is the one that is the most correlated with the latent construct. The economic capital of the schools explained 88.9 percent of the variation of the economic capital of the schools, where change in one unit in the latent variable was linked to a change in 0.943 the computer one. This variable is followed by existence of toilets for boys and books. Access to electricity from public network and existence of TVs for educational purposes have the lowest factor loading with 0.346 and 0.368 respectively (and the lowest R-squared with 0.120 for electricity and 0.136 for TVs), followed by Blackboard or whiteboard and access to water from the public network.

Similar to the calculation of the measures of perceived frequency of ASB, in order to establish an index of the economic capital of students, each individual was assigned a factor score based on results of the CFA. The factor score in this case represents the student's level of economic capital and will be normalised or converted into a score that goes from 0 to 1 for two main reasons. The first one is linked to the purpose of this chapter, which is establishing one measure for each one of the forms of capital and one for their inequality in the school context, and because the scores have positive and negative values, this can represent some problems. A negative score of any capital would imply the establishment of a threshold, and even if this is for pure mathematical reasons, this can affect the analysis because some groups can be excluded or treated differently (i.e. those fall under or over the threshold). The second reason is the interpretation of the results; the current scores range from -1.597 to 0.577 for the student economic capital, and from -1.576 to 0.899 for the school capital. Although both scores have a mean close to zero, the minimum and maximum values are different, so it will be harder to compare situations when students and schools have the lowest or highest levels of capital. What is more, in this case a negative value does not mean that students or schools are in debt or have other liabilities, but those that are below the average number of assets. Lastly, most inequality measures are based only on positive scores, including the ones that will be used in further analyses, so the calculation of the measures would exclude all the negative values.

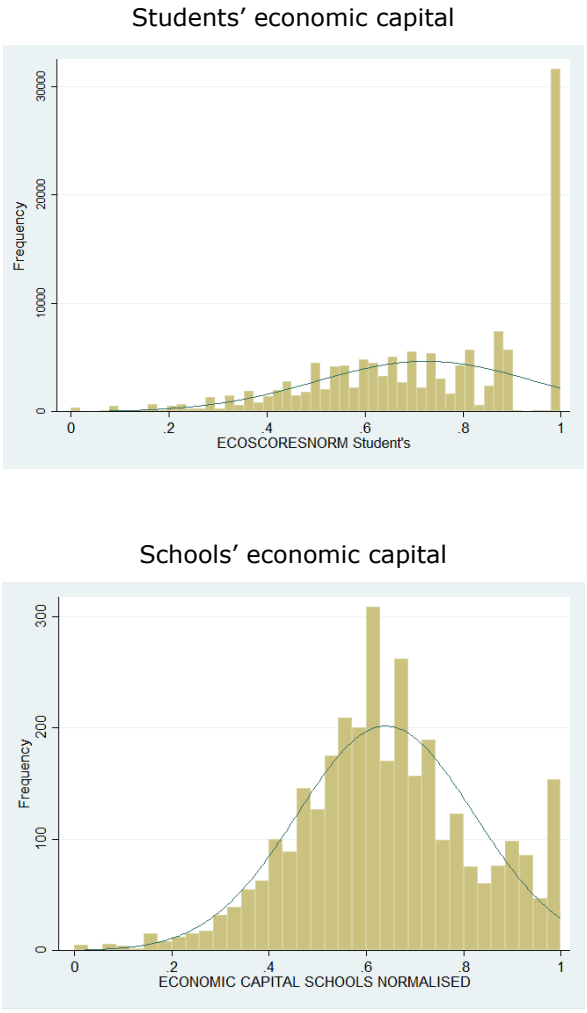


Figure 8.1: Distribution of economic capital Indices

Figure 8.1 displays the distribution of the normalised factor scores, that is the measures of economic capital for students and schools respectively. The minimum values represent individuals with no assets at home or schools that lacks all the infrastructure and equipment linked to economic capital, while the maximum value shows the students and schools with the highest possible number of assets in their household or their schools. Interestingly, the most common score for the students' capital was 1, with 23.7 percent of the cases, which means a large proportion of the students have all the assets at home, showing a noticeable gap between the richest students and the rest of the population. In spite of the fact that the distribution of students' scores is negatively skewed, the skewness and kurtosis fall within

normal distributions levels (skewness -0.45, kurtosis 2.55). In relation to the school economic capital, the values are more spread out and also follow a normal distribution (skewness -0.04, kurtosis 3.2). The mean value or average for the student scores is 0.723 with a standard deviation of 0.222, and for the school measure the mean is 0.670 with a standard deviation of 0.165. Although these figures can give us an overall idea about the economic capital in schools, it is important to analyse the indices using other variables in order to assess some of the most relevant differences that exist in relation to the type of school, size of locality, and state.

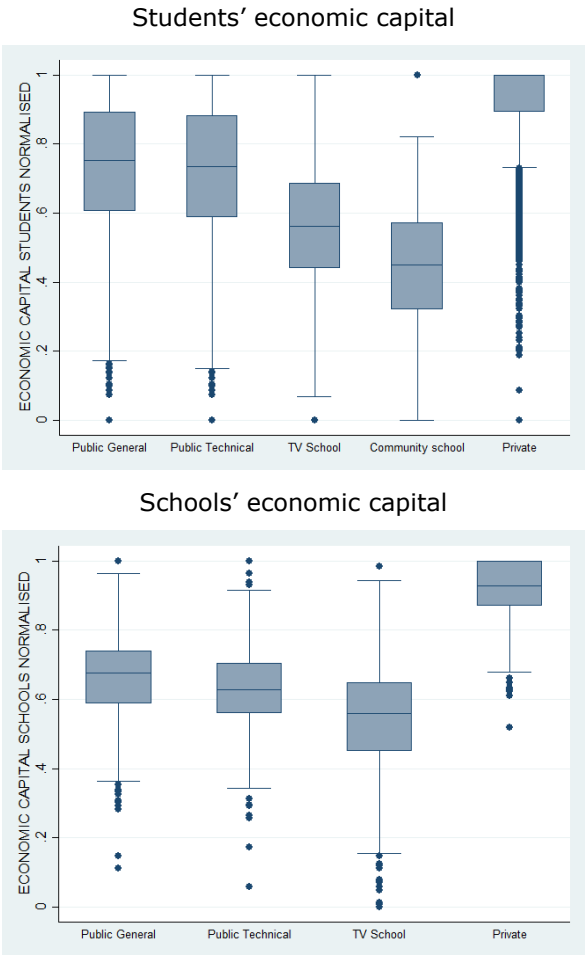


Figure 8.2: Boxplots economic capital by type of school and size of locality

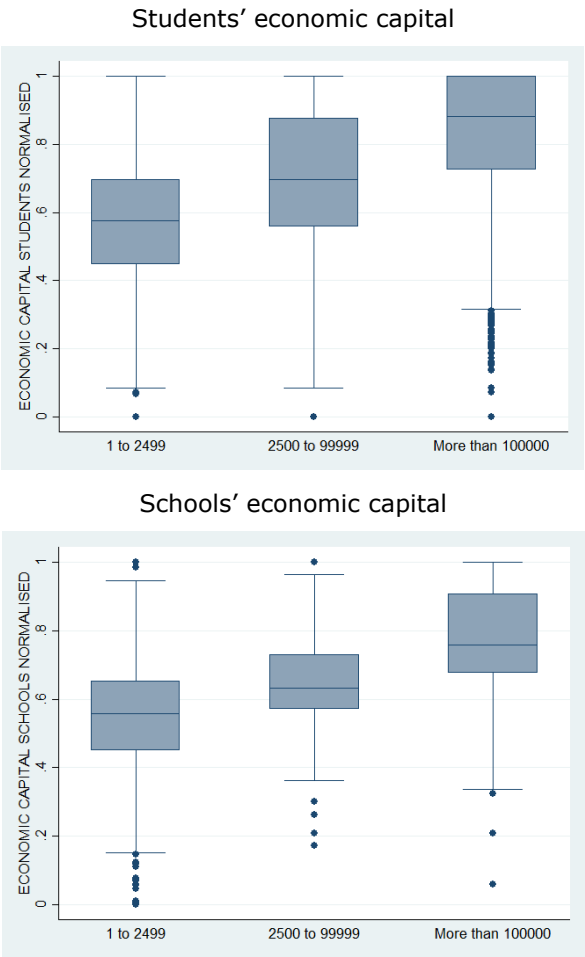


Figure 8.3: Boxplots economic capital by size of locality

Figure 8.2 shows the boxplots of the measures of the economic capital of the students and schools by type of school. It can be noted that there are noticeable differences between the median (value in the middle of the distribution for each subgroup) of each type of school (with the exception of Public and Technical). Private schools show the highest levels of economic capital, with a median of 1, which means that more than half of the students that attend this type of school have all the assets linked to economic capital at home. On the contrary, Community schools had the lowest median with 0.44, and only 1 percent of their students had values above 0.78. In relation to the economic capital of the school, Private school had also the highest scores, with a median of 0.92, and TV school the lowest (as Community schools are not represented in the Principals' data) with a median of 0.55.

Similarly figure 8.3 shows the boxplots of the students and school economic capital measures by size of locality, in which it is evident the differences that exist between the smallest and largest communities. In both cases, the smallest localities (i.e. those with less than 2,500 inhabitants) had the lowest levels of capital with a median of 0.69 for the students' measure and 0.55 for the schools' score, and only 1 percent of the schools in these localities had values above 0.9. In this sense, it is evident the pattern that these scores follow in relation to the variable '*size of locality*', in which as the locality size increases, so do the economic capital scores.

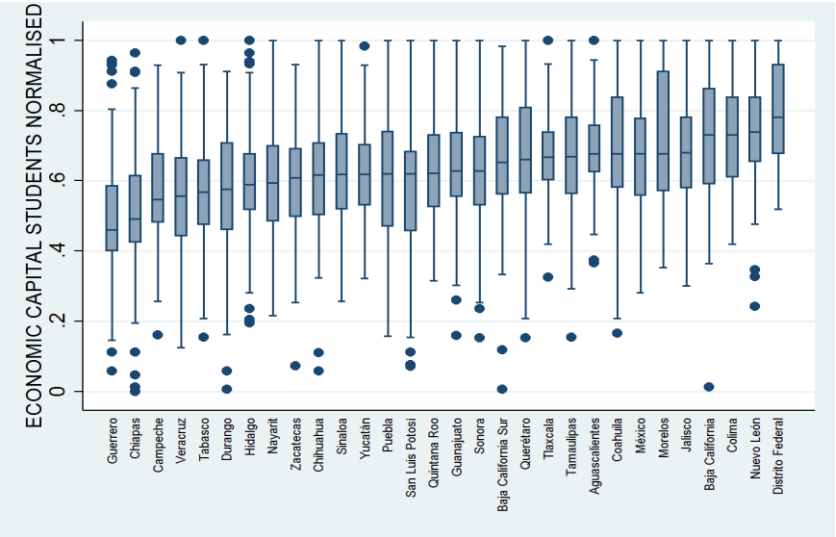
The results of the analysis of variance (ANOVA) showed that the differences between the means are significant (p-value 0.000). The model of the economic capital of the students explains 28.4 percent of the variance (r-squared 0.284), that is, 28.4 percent of the variation in this measure is explained by differences in the type of schools. Community schools had, on average, the lowest score with a mean (i.e. average) of 0.43, and Private schools had the highest with 0.94. Although the results of both measures cannot be directly compared because they are measuring different things at different levels, the results of the school capital show similar results. The model and the differences between all the groups were significant (p-value 0.000). The R-squared for the analysis of variance of the school economic capital by type of school had a considerably higher value compared to the students' analysis, in which the differences in this category can explain around 45.4 percent of the variation in the index. The ANOVA of both, school and student economic capital by size of locality showed that around 25 percent of the differences in the students' measure and 29.1 of the schools' score are explained by differences in the number of inhabitants of the locality. The differences between all the groups in both variables (type of school and size of locality) where significant (p-value 0.000).

Although the purpose of this study is the analysis of the link between the forms of capital and the perceived frequency of ASB in schools, these results are important as they support to some extent Bourdieu's (1987) view on capital, showing that, in his own terms, the distribution of capital seems to define the social space of schools. While the main difference of these schools should be either the type of education that they provide (TV, community, technical, or general), the finding (public or private), or the locality size, the availability of economic capital also seems to shape the characteristics of these institutions. In this sense,

these differences could not only define the access of assets and/or services, but as noted by Saravi (2015), the school experience of students (and perhaps also shape the view of principals). Students with economic problems could see their education disrupted due to problems associated with their own economic background (i.e. lack of basic services and assets at home and in their school), deteriorating their school experience, and even defining the way they see education and further academic careers. On the other hand, student from the most affluent backgrounds (i.e. Private schools and large localities) could benefit from not only better quality services and education, but also might have a better school experience as they do not have to face some of the challenges mentioned above.

Furthermore, these findings confirm the use of an ecological approach, especially one based on the Ecological System Theory developed by Urie Bronfenbrenner (1979). As noted in section 4.3.1, Bronfenbrenner (1979) suggested that the development of children is shaped not only by their own characteristics, but also by those in their social space. Therefore, the level of economic capital of students is defined not only by their family background, but also by the characteristics of their schools, localities, and as shown in figure 8.4 even the state where they live. In this sense and as highlighted in chapter 2, there is an important geographical difference in the economic capital of the students and the schools. It can be noted that some states with the lowest levels of economic capital such as Guerrero, Chiapas, and Campeche, match those with the highest levels of marginalisation, as defined by the Mexican government (CONEVAL 2017), and those with the highest average correspond to the lowest levels of marginalisation. What is more, although not all the differences between the states are statistically significant, the states at the lowest levels of economic capital are mainly located in the south and the ones at the highest levels in the central and northern part. For instance, the Southern state of Guerrero had a normalised scores of the students' capital of 0.53 and for the school of 0.49. This contrasts with the results of the state at the top, Distrito Federal (Mexico City), in which the students' score was 0.84 in Mexico City and the school one 0.79. Despite this pattern, the effect of the states on the economic capital scores seems to be small, as the ANOVA of the students' capital showed that only 11.2 percent of the variance is explained by the variable state, and in the case of the schools' capital, 13.7 percent of the variation is explained by differences between states.

Students' economic capital



Schools' economic capital

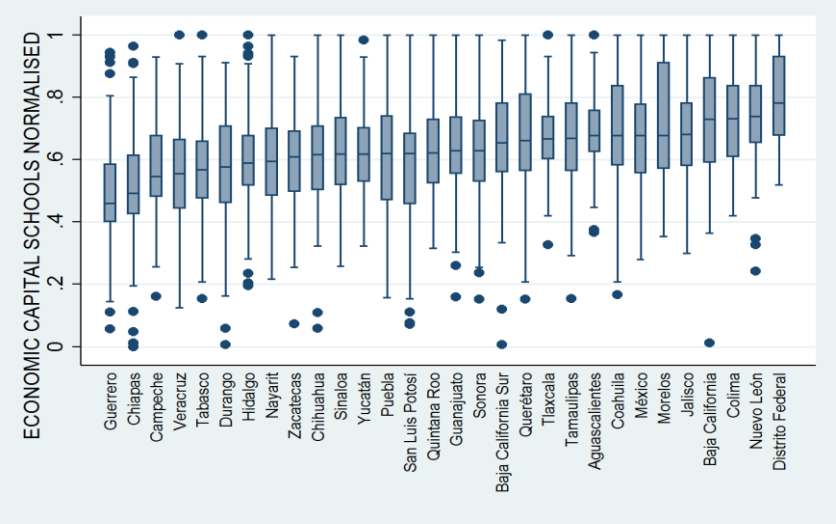


Figure 8.4: Boxplot economic capital by state

8.2.2 Construction of measures of inequality in economic capital

Finally, three different measures were calculated using the economic capital measures of the students and schools that resulted from the normalised scores of the CFA. Table 8.3 displays the levels of inequality in economic capital using the GINI coefficient, which is the most used measure of inequality, and Generalised Entropy (GE), which allows the analysis of the effects of inequality at different parts of the distribution. As mentioned in chapter 6, this research used some aspects of Maasoumi's (1986, 1999) two-step approach because it supports the

calculation of inequality measures based on capital scores. Therefore, GE will be used for the rest of the analysis, however, the GINI coefficient is included in this section in order to compare their results (and because it is more popular in the Economics' literature). The first thing that can be noted is the fact that in the results of all the measures, inequality in the capital of the students is higher than the one in the schools (i.e. there is greater inequality between the economic capital of the students than between schools).

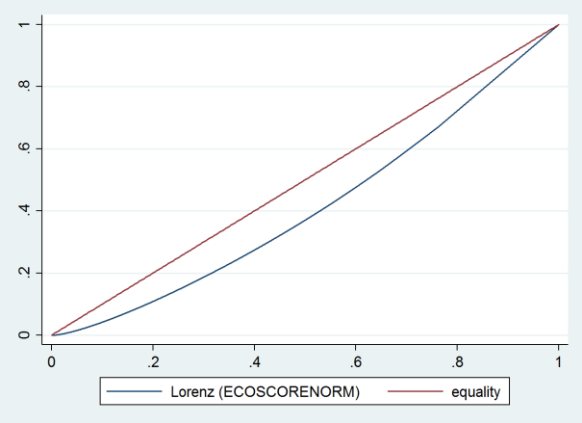
Table 8.3: Inequality in the students' and schools' economic capital

	Student economic capital (normalised)	School economic capital (normalised)
GINI	0.171	0.159
GE(0)	0.059	0.051
GE(1)	0.050	0.043
GE(2)	0.045	0.040

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
N= 144,057 for students. N= 3,529 for schools' capital. Measures based on normalised factor scores resulting from CFA.

Figure 8.5, which shows the Lorenz curve (basis of the GINI index) confirms that there is more inequality in the economic capital of the students than in the capital of the schools, as the curve of the students score is more distant from the perfect equality line than the curve of the school score. Additionally, the results of GE displayed in table 8.3, confirm the use of inequality measures that explore disparities at different parts of the distribution. Although the GINI showed more disparities between students than between schools, GE(0) had the highest values among all GE measures. This means that differences in economic capital are higher between the most deprived students and schools and the rest of them, or in other words, the highest levels of inequality result from the poorest students and schools. On the contrary, the measure with the parameter that focuses on the part of the distribution where more weight is given to the top (GE(2)), had the lowest scores, which means that there is less distance between the wealthiest students and schools and the rest of students and schools.

Lorenz curve of the students' economic capital



Lorenz curve of the schools' economic capital

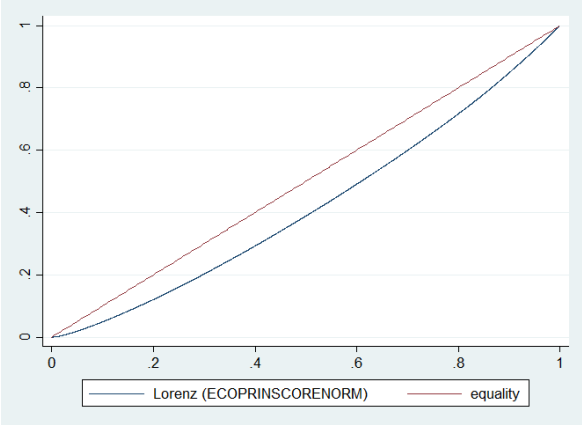


Figure 8.5: Lorenz curve Student and School economic inequality

Table 8.4: Inequality in the students' economic capital by type of school and size of locality

	Type of School					Size of Locality		
	Public	Technical	TV School	Private	Community schools	1 to 2,499	2,500 to 99,999	More than 100,000
GINI	0.146	0.156	0.194	0.044	0.222	0.194	0.164	0.111
GE(0)	0.040	0.048	0.077	0.007	0.102	0.076	0.050	0.026
GE(1)	0.035	0.041	0.064	0.006	0.083	0.064	0.044	0.023
GE(2)	0.033	0.038	0.03	0.005	0.076	0.059	0.041	0.021

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 144,057.
Measures based on normalised factor scores resulting from CFA.

Table 8.4 shows the results of inequality in the economic capital of the students by type of school and size of the locality. Confirming previous findings, inequality is greater at the bottom part of the distribution (i.e. due to very poor students), as GE(0) is always higher than the other measures that focus on other parts of the distribution. Community schools and the smallest communities (both which have the highest levels of deprivation) have the highest levels of inequality, as they have the highest value in all the measures. In contrast, the largest cities, and especially Private schools, have the lowest levels of inequality, which means that most of their students have similar levels of economic capital. In line with the ANOVA results of the of student economic capital by size of locality, we can observe a pattern in the inequality indices, in which as the number of inhabitants in the community increases, the level of inequality decreases.

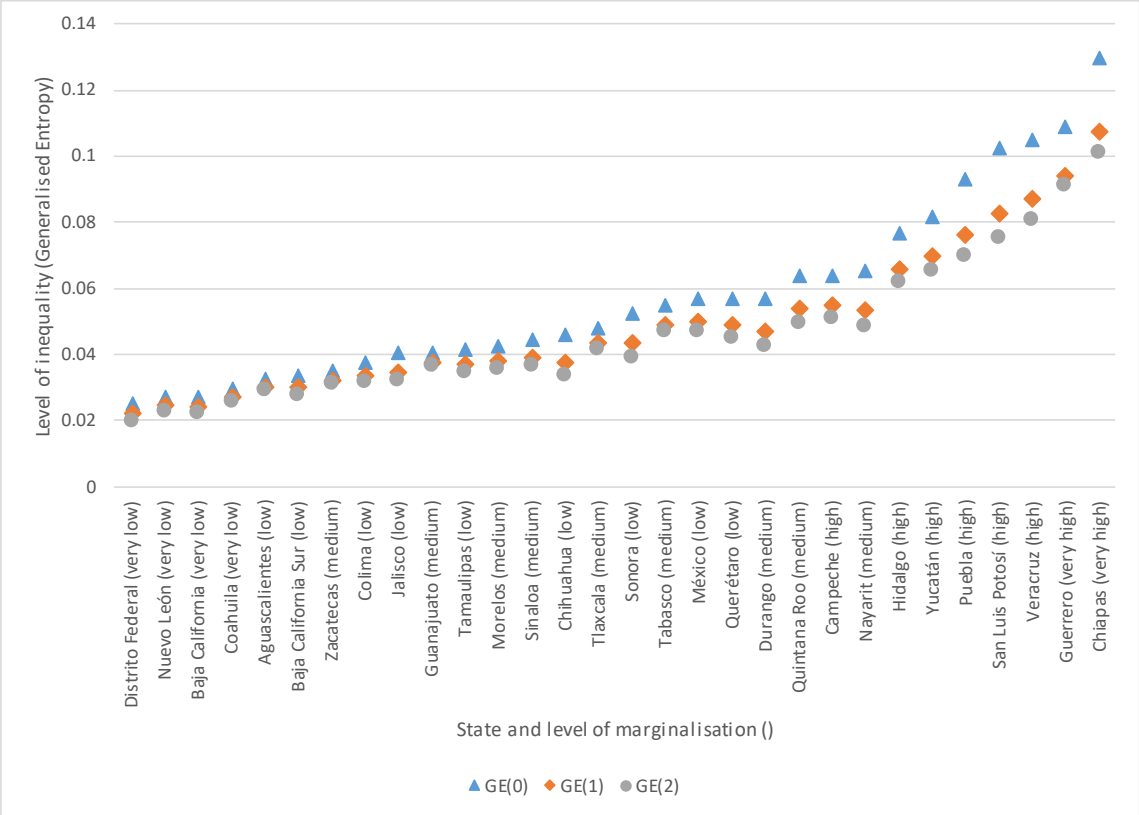


Figure 8.6: Generalised Entropy Indices of student economic capital by state.

GE measures by state are shown in figure 8.6, where it is noted that some of the states with the highest levels of marginalisation (mainly located in the south of the country) have the highest levels of inequality. Furthermore, it can be noted that the measure that puts more weight at the bottom part of the distribution (i.e. emphasising on disparities due to very deprived students) is higher than the other two measures, especially among states with the highest levels of inequality (and marginalisation). On the other hand, Mexico City is once again the state with more economic equality between its students. These results suggest that, although inequality in the students' economic capital exist in all states of the country, it is greater in the most disadvantaged states.

Table 8.5: Inequality in the schools' economic capital by type of school and size of locality

	Type of School				Size of Locality		
	Public	Technical	TV School	Private	1 to 2,499	2,500 to 99,999	More than 100,000
GINI	0.099	0.112	0.159	0.049	0.16	0.117	0.112
GE(0)	0.019	0.024	0.058	0.004	0.058	0.024	0.022
GE(1)	0.017	0.021	0.045	0.004	0.045	0.023	0.021
GE(2)	0.016	0.02	0.04	0.004	0.041	0.023	0.020

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529.
Measures based on normalised factor scores resulting from CFA.

Table 8.5 displays the different inequality measures of the school economic capital by type of school and size of locality. The results are very similar to the students' economic inequality, yet, there are some important differences. For instance, because principals of Community schools did not take part in the survey, this type of school is not included in the results, and thus, TV schools shows the highest levels of inequality. Another interesting result is the fact that although there is more inequality in the smallest communities, localities of middle and large size have almost the same levels of inequality. Moreover, inequality is almost the same at all parts of the distribution in middle and large cities, showing that school infrastructure and resources are similarly allocated to in these localities, and the differences that exists between them could be explained by other factors (such as type of school).

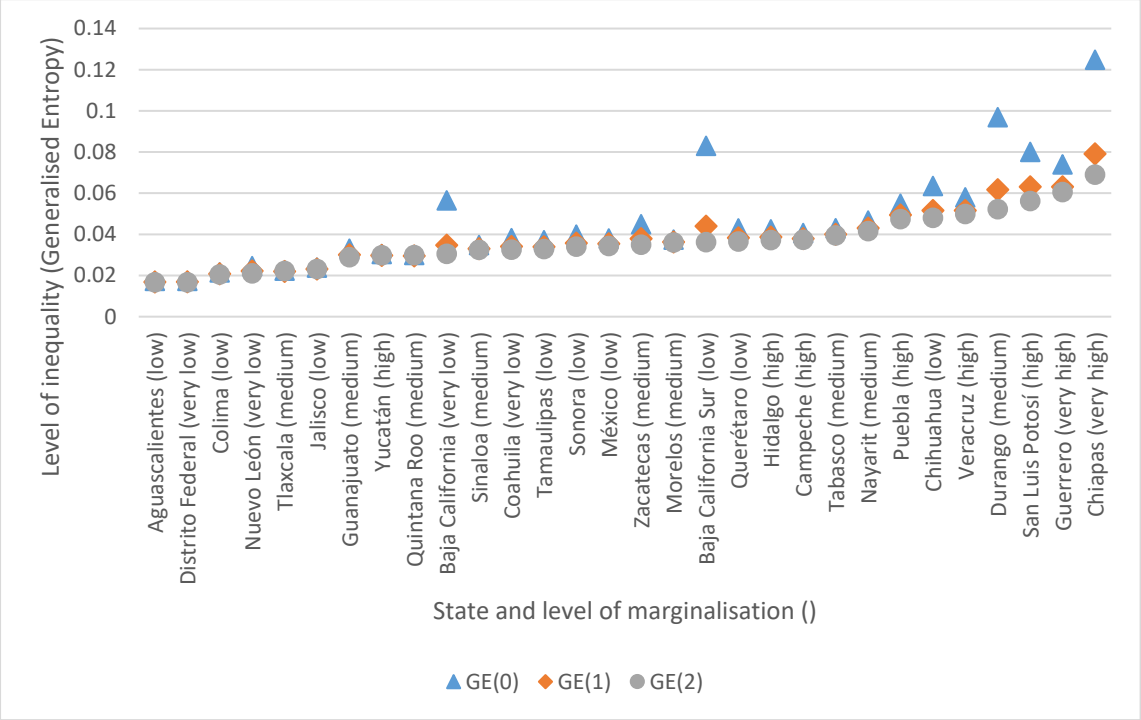


Figure 8.7: Generalised Entropy Indices of school economic capital by state

Finally, figure 8.7 shows the GE measures of the school economic capital by state. It can be noted that a similar pattern is found between the levels of inequality in the student economic capital and the school economic capital, where some of the states with the highest levels of marginalisation also seem to have some of the highest levels of inequality. However, the differences that exists at different parts of the distribution are almost null for most of the states, with some very important exceptions. Some of the states with the highest levels of inequality show more inequality at the bottom of their distribution (GE(0)), with cases such as Chiapas and Durango where this difference is almost double. There are also two states that show a similar pattern, Baja California and Baja California Sur, which are at the middle part of the graph but where the measure that emphasises on very deprived schools (GE(0)) is considerably higher compared to the other two. Both situations indicate that the poorest schools (in terms of economic capital) are considerably poorer than the rest of the schools of these states.

Although the main purpose of this section was the construction of measures of economic capital and inequality, which will be used in the final models of this thesis, this section also

revealed important methodological, theoretical, and substantial elements about economic capital in the school context in Mexico. First, it showed the importance of using an adequate technique in the construction of these measures. For instance, in an analysis of the means between the measures based on CFA and the '*counting approach*' (appendices 2 to 4), the factors scores from CFA resulted in better models, as the results of the ANOVA by type of school and size of locality accounted for more variance than the ones based on the counting approach. Similarly, it was shown the importance of inequality measures that focus at different parts of the distribution, as the GE measures detected that more inequality was present at the lowest end of the distribution, that is, the highest disparities resulted from the presence of very deprived students and schools. Therefore, as this study will be based on some aspects of Maasoumi's (1986, 1999) approach to calculate inequality measures, only GE will be used for the rest of the analysis.

In relation to the development and interpretation of economic capital measures, the results of this section seems to support two important theoretical perspectives of this research: the use of Bourdieu's (1987) concept of capital, and the incorporation of an ecological approach based on Ecological Systems Theory (Bronfenbrenner 1979). Bourdieu (1987) argued that the distribution of capital defined the social space and could be used to explain differences observed in particular places. The analysis of the measures of economic capital showed remarkable differences between different types of schools, localities, and states, suggesting that not only the characteristics of students could be used to explain certain social problems (i.e. the perception of ASB), but also they seem to define their social space (i.e. schools), and thus, could also be associated with such problems. Therefore, these findings also support the use of an ecological approach because, as suggested by Bronfenbrenner (1979), the behaviour of individuals (i.e. students) is shaped by both individual characteristics and those of the world around them.

Lastly, in substantial terms, this section helped to identify differences in the levels of economic capital of students and schools. For instance, the economic capital of both students and schools seem to vary considerably among different types of schools, where Community and TV schools showed the lowest scores, whereas Private school the highest. It was also possible to detect important differences in economic capital according to the size of locality, as smaller communities had the lowest scores, and the cities with more than 100,000

inhabitants had the highest levels of economic capital. These findings are not surprising, as the literature presented in chapters 2 and 3 suggests an acute economic division between students of the poorest and wealthiest backgrounds. Yet, the comparison of the different inequality measures showed some elements about inequality that do not seem to be explored before, especially in relation to inequality as a result of disparities at different parts of the distribution. Similar to the analysis of the capital scores, Community and TV schools had the highest inequality, and Private school the lowest, yet, as noted before, this section showed that the largest disparities resulted from the presence of very deprived students and schools. Finally, it can be pointed out that the levels of economic capital and its inequality seem to be associated with a very interesting geographical element, where the most marginalised states (mainly located in the south of the country) had on average the lowest economic capital and highest inequality levels, and in contrast, the wealthier states were less unequal. As the purpose of this chapter is the analysis of different forms of capital, the next two sections will examine social and cultural capital and their inequality using a similar approach to the one presented for economic capital. It is important to note that these two forms of capital and their inequalities have not been deeply explored by researchers in the past, and therefore, the findings of the following sections will contribute to the literature about schools in Mexico.

8.3 Social capital and inequality

As discussed in chapter 4, the quality of life of individuals cannot be assessed using only economic resources, and thus, other elements must be taken into account in order to untangle the complex link between poverty, inequality, and the perceived frequency of ASB in the school context. It is in this sense that based on a multidimensional approach, and especially, on Bourdieu's (1986) division of capital into different forms beyond economic assets, this section aims to construct measures of social capital and its inequality for students and schools in Mexico. In Bourdieu's view, social capital refers to all those connections to social networks and social obligations that provide their members with '*the backing of the collectivity-owned capital*' (Bourdieu 1986, 52); that is, all the benefits that arise from our interaction with people around us and the social groups to which we belong. It is important to mention that, as discussed in section 5.6, the design of PLANEA (INEE 2016) contemplated

several variables that were explicitly categorised as social capital[31]. In line with the analysis of economic capital, this section will also explore differences in social capital and its inequality among different types of schools, localities, and states. This section will begin by describing the results of the CFA and its factor scores. The exploration of both scores of social capital will be followed by the construction and examination of inequality measures based on GE, which will be used to analyse how resources are spread across students and schools, and which will help us to find inequalities at different parts of the distribution.

Table 8.6 displays the factor loadings, significance level, and the R-squared of the observed and unobserved variables used in the construction of the students' social capital measure. It can be noted that for the construction of the students' factor scores, the variables were split into three different latent constructs: one related to the positive attitudes in their classroom, one for positive school elements, and one linked to teachers' negative conducts. According to Portes (2000), Bourdieu's view on social capital does not restrict this form of capital only to positive social connections (unlike other authors such as (Coleman 1988; Putnam 1995)), and thus, confirming again that this is the best theoretical approach for this study. Furthermore, it is important to remember that in chapter 3 it was found that several scholars have suggested that both positive and negative social connections are linked to ASB in schools, and thus, the incorporation of both elements in the theoretical concept of social capital results essential. The latent construct linked to positive capital in the classroom had the strongest correlation with the social capital of the students, explaining 89.8 percent of the variation in the capital. This construct is followed by positive school capital, explaining 62.2 percent of the variation, and finally the negative capital, with 36.5 percent of the variance. As expected, the latent variable *'negative capital'* is negatively related to the social capital of the students, with a standardised coefficient of -0.604, which means that an increase in one unit of the social capital score would be associated with a 0.604 fall of negative capital score.

[31] As highlighted in section 5.6, the design of PLANEA (INEE 2016) was based on different measures categorized into three groups: economic, social, and cultural capital. Although Bourdieu's (1986) view on capital were not discussed in any document of the survey, this classification seems to be in line with this theoretical approach.

Table 8.6: CFA Student social capital

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Teacher gives confidence	1.027**	0.702**	0.493
Students give opinion on rules	1.019**	0.697**	0.485
Teacher considers opinion	1.000**	0.683**	0.467
Teacher organises activities	0.978**	0.668**	0.446
Teacher ask to listen others	0.968**	0.662**	0.438
Teacher encourages	0.926**	0.632**	0.400
Students work in teams	0.733**	0.501**	0.251
Teacher encourages to talk when upset	0.704**	0.481**	0.232
Positive classroom Capital	***1***	***0.948****	***0.898***
Principal and teachers listen students' complaints	1.141**	0.748**	0.559
Students trust teachers	1.088**	0.713**	0.509
Principal helps to solve problems	1.083**	0.709**	0.503
Students taken into account in school	1	0.655**	0.429
Students review school activities	0.964**	0.632**	0.399
Students suggest activities	0.914**	0.599**	0.359
Changes made based on students proposals	0.889**	0.582**	0.339
Positive school Capital	***0.798****	***0.789****	***0.622***
Teacher ignores	1.341**	0.791**	0.626
Teacher shouts	1.085**	0.64**	0.41
Teacher interrupts	1	0.59**	0.348
Teacher scolds	0.667**	0.393**	0.154
Negative social Capital	***-0.550****	***-0.604****	**0*.365***
Social Capital Students	***0.419****	***1***	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 144,057
Fit indices: Chi-square= 99,383.569 with 149 df, p=0.000, RMSEA= 0.070, CFI=0.928, TLI=0.917. ** p<0.01, * p<0.05.

In the same way, table 8.7 shows the results of the CFA of the principals' measures of social capital. The variable that contributes the most to the latent construct is the one related to how often the students meet the school rules, which explains 49.3 percent of the variation of the social capital scores. This variable is followed by the perception of frequency with which students solve problems peacefully, explaining 43.4 percent of the variation in social capital, and the principal helping to solve problems, which explains 43.4 percent of the variance. Two variables have an R-squared of less than 0.1; however, despite this low

correlation they remained in the CFA, not only because they were contemplated in the design of social capita in PLANEA (INEE 2016) but also because they were necessary to construct this measure of social capital (as the model could not predict the latent construct without these variables). Lastly, it can be noted that similar to the measures of economic capital, the measures of students' social capital and school social capital cannot be directly compared, as the variables used to construct these measures are associated with different activities and behaviours.

Table 8.7: CFA School social capital

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Students meet school rules	1	0.702**	0.493
Principal helps to solve problems	0.709**	0.498**	0.434
Students solve conflicts peacefully	0.93**	0.653**	0.426
Principal involves students in school activities	0.433**	0.304**	0.093
Principal involves parents to solve problems	0.389**	0.273**	0.075
Social Capital School	***0.419****	***1***	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529
Fit indices: Chi-square= 364.130 with 5 df, p=0.000, RMSEA= 0.149, CFI=0.828, TLI=0.656. ** p<0.01, * p<0.05.

Figure 8.8 displays the distribution of the measures of social capital for students and schools. In a similar way to the scores of the economic capital, the measures were normalised for a better interpretation and because inequality measures cannot be computed with negative scores. Thus, the values of social capital range from 0 to 1, in which 0 denotes the absence of social capital and 1 a situation when the maximum amount of capital is allocated to that student or school. In other words, a value of 0 is associated with those students and principals that perceive the worst social coexistence in schools, and 1 to the ones with the best perception. Figure 8.8 shows the distribution of the social capital measures linked to the students and schools, where it can be observed that the distribution of the students' capital follows an almost perfect normal distribution, with a skewness of 0.09 and a kurtosis of 3. The distribution of the social capital of the school, which measures the principals' perception of social capital, seems to be highly skewed to the right; yet, the normality test shows that it is within normal parameters with a kurtosis of 3.1 and skewness is -0.05. Therefore, the analysis will continue with the assumption of normality in both variables. The

mean value of the students' social capital is 0.58, with a standard deviation of 0.14, and for the school social capital the mean is 0.71 with a standard deviation of 0.14.

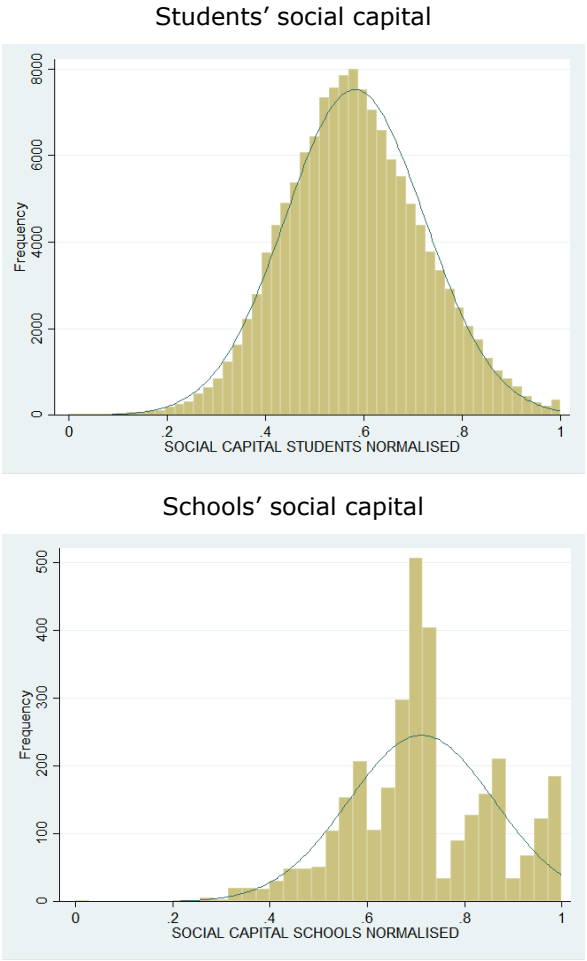


Figure 8.8: Distribution of social capital Indices

Figure 8.9 shows the boxplots of the social capital measures by type of school. In contrast to economic capital, there is not a noticeable difference between the scores of the different types of schools. Indeed, the means of the students' social capital of Public, Technical, and Private schools were 0.56, and the differences in these groups were not statistically significant. What is more, TV and Community schools had the highest scores with 0.62 and 0.63 respectively, which is interesting considering that they are among the poorest schools in the country. These findings are very interesting because, as highlighted in chapter 2, some

types of schools have been associated with low levels of social capital. For instance, Saravi (2015) noted that while students from the poorest backgrounds usually face several challenges derived from their vulnerable situation, which disrupt their education and the formation of solid social connections, those in private schools benefit from linear trajectories that allow them to construct better social networks. The results from the school social capital are also interesting because, compared to the results of perceived frequency of ASB presented in chapter 7, private school principals do not seem to have a much better perception about social connections in the school environment. The ANOVA of these measures showed that only three percent of the variability in the social capital of the students was explained by differences in type of school, while in the case of the school social capital it explained only 2.6 percent of the variance.

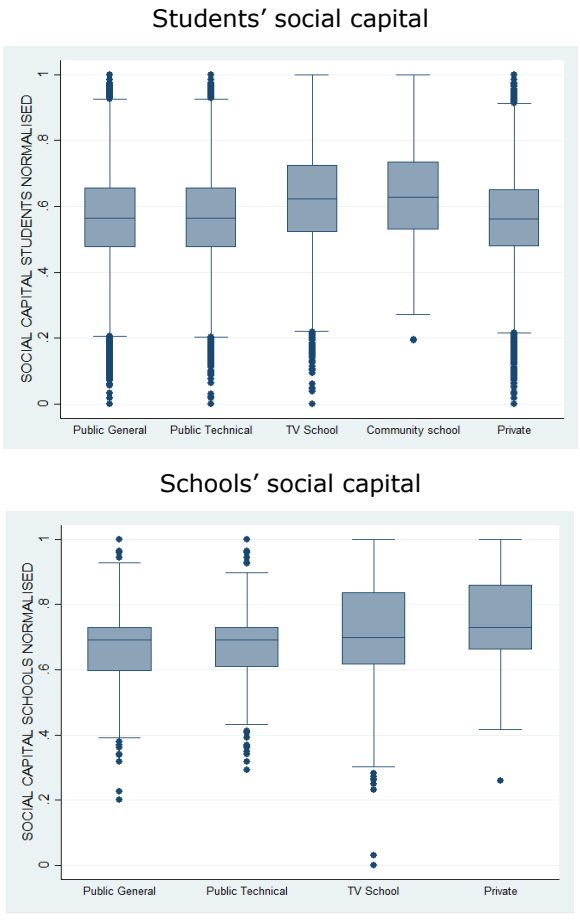


Figure 8.9: Boxplots social capital by type of school.

Figure 8.10 shows the boxplots of the social capital measures by size of locality, where it can be noted that the smallest communities had the highest mean value in the students' scores, with 0.61, followed by mid-sized cities with 0.57, and the largest cities had a score of 0.56. In the case of the school social capital, the only statistically significant difference was between small and midsize localities (where small localities had slightly higher levels of social capital). Although these is a lack of studies about social capital in small rural areas in Mexico, these results are interesting because they could indicate that social connections could be stronger in these places, compared to other larger localities. Yet, despite this apparent trend, only 2.8 percent of the variability in the students' social capital measures was explained by the size of the locality, while only 0.05 percent of the variation of the school capital was explained by differences in the locality size. ,

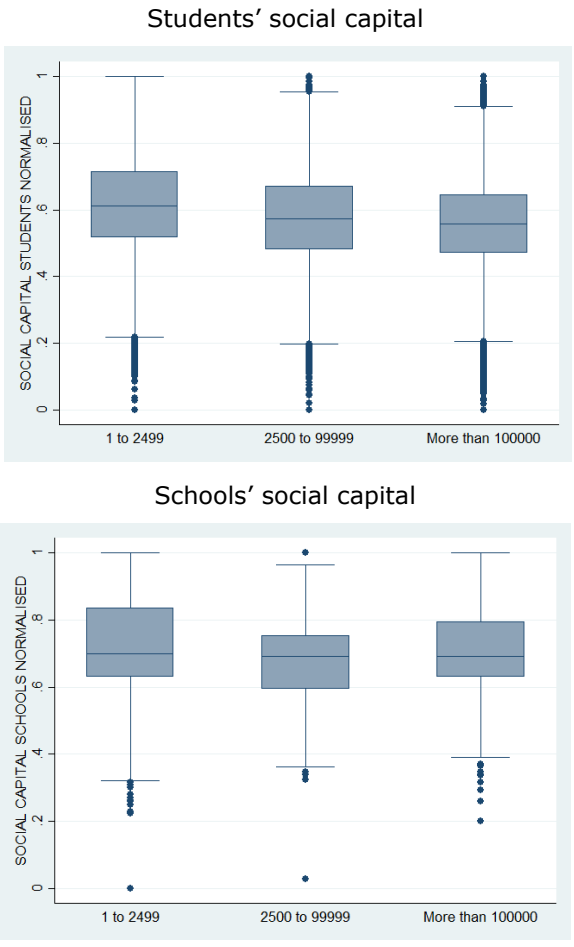
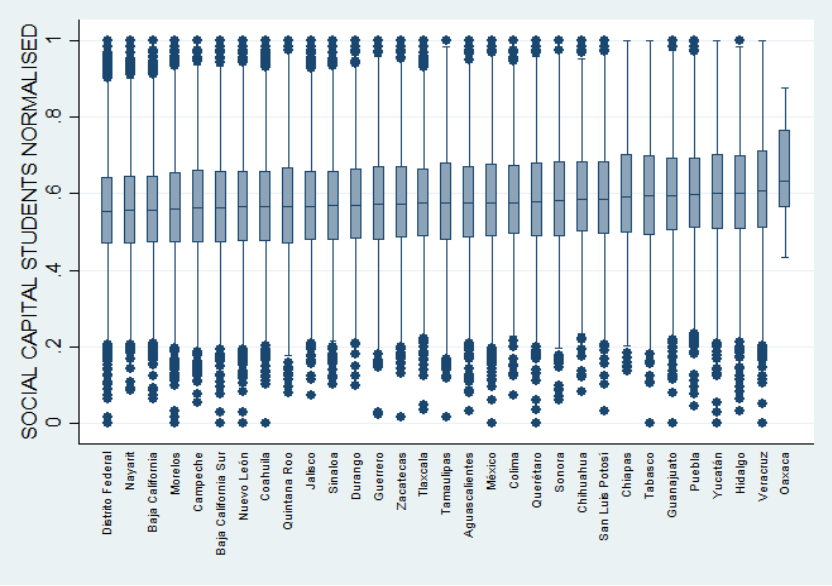


Figure 8.10: Boxplots social capital by size of locality

Similar to the results of the students and schools' social capital by type of school and size of locality, as noted in figure 8.11, there are not important differences in the social capital of students and schools between the different states of the countries. Moreover, the ANOVA by state showed that only 1 percent of the variation in the students' social capital and 1.3 percent in the school score was explained by differences between states. Despite the low association between the social capital of students and states, it can be noted that some of the states with the highest mean value were among the poorest of the country, while Mexico City, the wealthiest state had the lowest mean score of student social capital. In relation to the school capital, the boxplot did not show any identifiable pattern, and the ANOVA showed that the differences between the means of the states were not significant. Once again, these results are very interesting as they indicate that social capital does not seem to be associated with any of the variables examined in this section, which suggests that students could form solid social connections and perceive a positive coexistence regardless of their own background. This situation is especially interesting in the Mexican context, as there is a perception that some students from wealthier backgrounds have much better social connections and coexistence in their school environment, yet, this does not seem to be the case as the results presented in this section suggest that social capital might depend on other factors.

Students' social capital



Schools' social capital

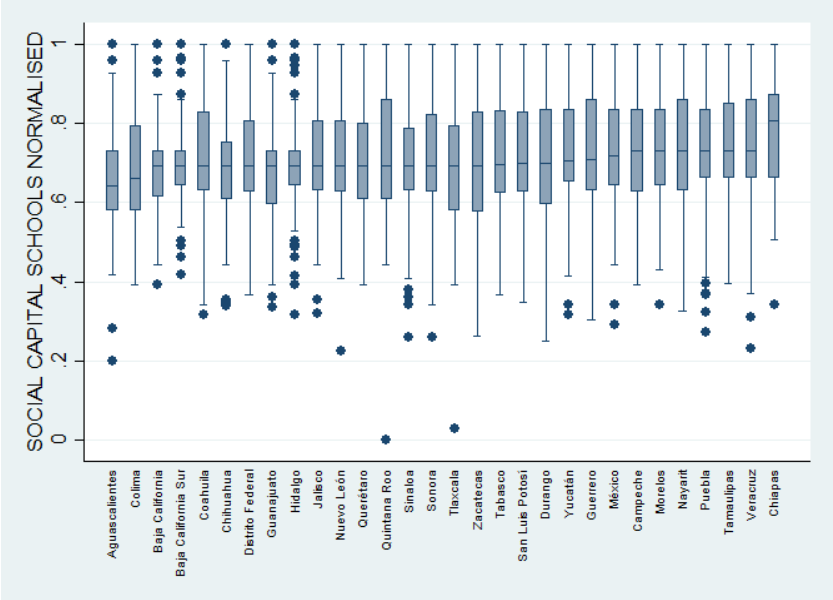


Figure 8.11: Boxplots of social capital by state

The GE measures for the students and schools social capital are displayed in table 8.8. In both cases, although the difference in the measures is very small, there is more inequality at the bottom of the distribution (GE(0)), that is, the highest levels of inequality result from those students and principals who perceive very bad connections in the school context.

Table 8.8: Inequality in the students and schools' social capital

	Student social capital (normalised)	School social capital (normalised)
GE(0)	0.032	0.024
GE(1)	0.03	0.022
GE(2)	0.029	0.022

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
N= 144,057 for students. N= 3,529 for schools. Measures based on normalised factor scores resulting from CFA.

Furthermore, the results of the measures by type of school and size of locality displayed in table 8.9 show that inequality in the students social capital does not vary considerably between the different subcategories. Although Private schools show the highest level of inequality, the difference with Community schools (which show the lowest levels of

inequality) is very small. Similarly, cities with more than 100,000 inhabitants have the highest levels of inequality in social capital; however, the difference with medium and small localities is almost null. The measures show that for all cases there is more inequality in the bottom of the distribution, yet, again this difference is very small.

Table 8.9: Inequality in the students' social capital by type of school and size of locality

	Type of School					Size of Locality		
	Public	Technical	TV School	Community schools	Private	1 to 2,499	2,500 to 99,999	More than 100,000
GE(0)	0.031	0.031	0.029	0.028	0.034	0.029	0.031	0.033
GE(1)	0.029	0.029	0.027	0.027	0.031	0.027	0.029	0.03
GE(2)	0.029	0.028	0.026	0.026	0.03	0.026	0.028	0.029

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
N= 144,057. Measures based on normalised factor scores resulting from CFA.

The results of the GE measures by state are shown in figure 8.12, where it can be observed that inequality is higher at the bottom of the distribution for all the states, yet, the difference with other parts of the distribution is very small. The ranking of the states does not show any evident pattern like the ones observed for inequality in economic capital. For instance, the state with the highest inequality in the students social capital is located in the north, the second and third highest in the south, and so on, so the distribution does not reflect the north/centre-south divide explained in previous chapters. This suggest far less geographical variation in inequality for social capital than for economic capital across Mexican schools.

Lastly, the results of GE measures of the schools' social capital are displayed in table 8.10, where it can be noted that TV schools and the smallest localities have the highest levels of inequality in this form of capital. Accordingly, Private schools and the ones located in cities with more than 100,000 have the lowest inequality; and for all cases inequality is higher at the bottom of the distribution. However, similar to the measures of inequality in the students' social capital, the differences are very small. Figure 8.13 shows the GE measures of the schools social capital by state. The results are very interesting as nearly all states show similar inequality at all parts of the distribution, with some exceptions such as the central state of Tlaxcala, which shows a notably higher inequality at the bottom of the distribution. Yet, similar to the student capital, there is not a geographical pattern so the level of inequality does not seem to depend on differences between regions, and indeed, it can be

concluded that neither social capital nor its inequality is explained by differences between types of schools, size of locality, or state.

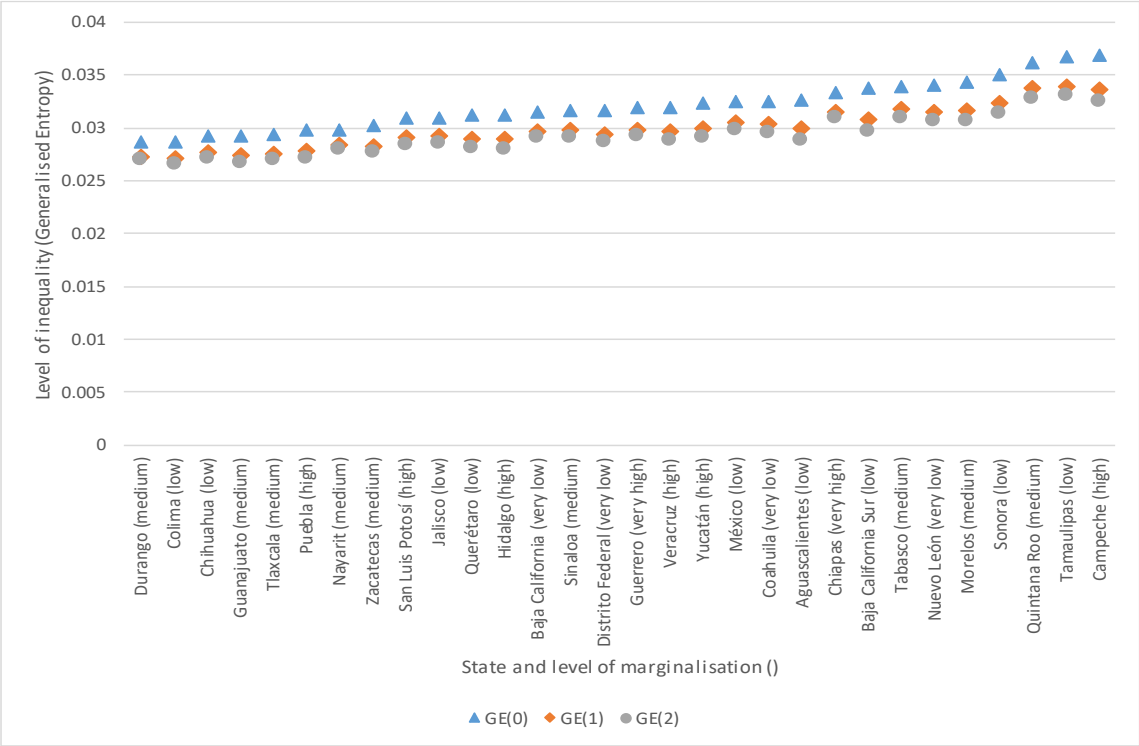


Figure 8.12: Generalised Entropy Indices of student social capital by state

Table 8.10 Inequality in the schools' social capital by type of school and size of locality

	Public	Technical	TV School	Private	1 to 2,499	2,500 to 99,999	More than 100,000
GE(0)	0.019	0.019	0.029	0.017	0.026	0.024	0.02
GE(1)	0.018	0.018	0.026	0.016	0.024	0.021	0.019
GE(2)	0.018	0.018	0.025	0.016	0.024	0.021	0.018

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529.
Measures based on normalised factor scores resulting from CFA.

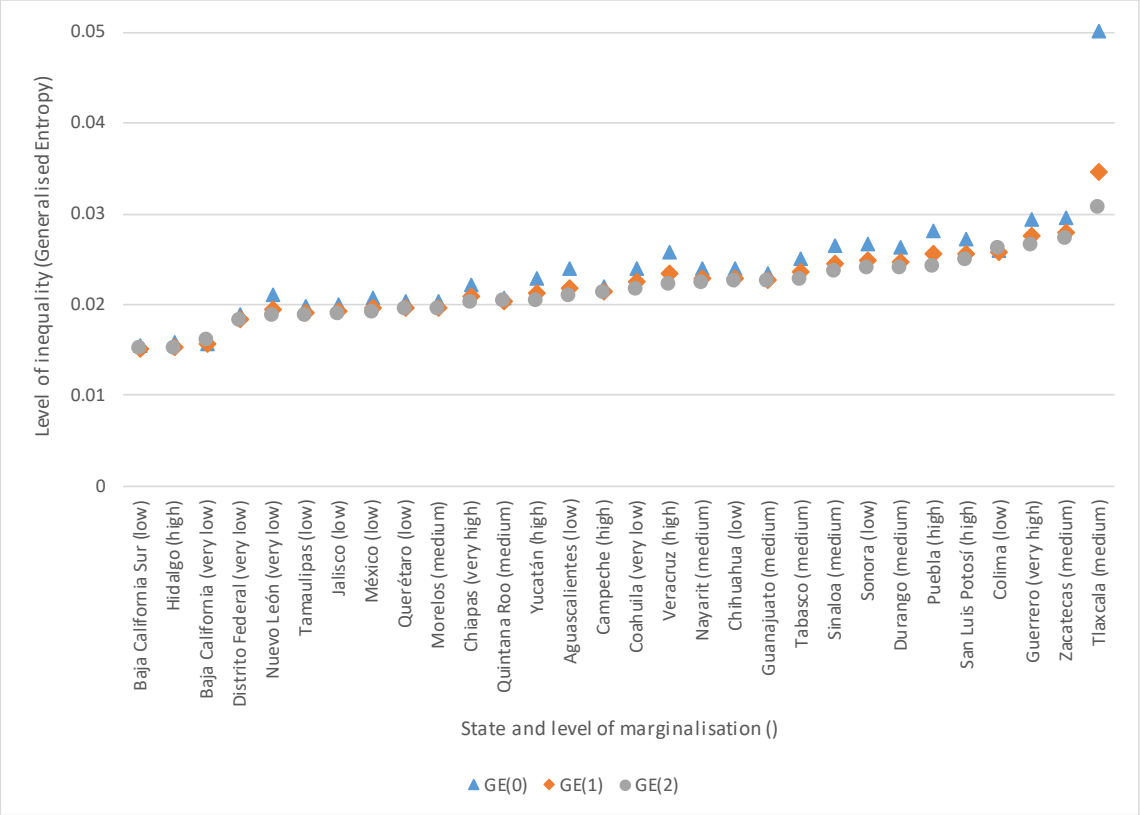


Figure 8.13: Generalised Entropy Indices of school social capital by state

This section explored the perception of the students and principals about their social connections with others in the school environment, which was used as the basis for the construction of the measures of social capital and further measures of inequality in social capital. In line with Bourdieu's (1986, 1987) concept of capital, it was shown that the variables used to construct the students' measures were associated with 3 different aspects of social connections and coexistence in schools, leading to construction of three latent constructs: one associated to positive class behaviours, other to positive school attitudes, and one to negative attitudes from teachers. The latent variable '*negative social capital'* had, as expected, a negative standardised coefficient, which meant that the variables connected to it led to a reduction in the social capital of the students in the school environment. In relation to the latent construct of school social capital, all the variables loaded into one unobserved variable. The resulting scores from the CFA for both students and schools did not show any noticeable pattern when examined by the variables '*type of school*', *'size of locality'*, and '*state'*.

Although Bourdieu (1987) suggested that differences in capital defined the social space and thus, accounted for the differences in any particular place, the results presented in this section suggest that, unlike economic capital, social capital in the school context does not depend on the contextual factors analysed here. However, this form of capital could be explained by other elements not contemplated in this study, and/or could be used to explain other social issues (i.e. the perception of ASB), as societies are organised around capital in all its forms (Calhoun, LiPuma, and Postone 1993). Although one of the main contribution of this study is the analysis of inequality in social (and cultural) capital, as in the past differences in this form of capital have not been used to explain social problems, the results of the GE measures showed that there are not significant disparities in social capital. Yet, as the aim of this thesis is the analysis of the relationship between the forms of capital, their associated inequalities, and the perceived frequency of ASB; the measures of social capital and its inequality were not excluded from the analysis (despite the lack of association with the school context).

8.4 Cultural capital and inequality

Following Bourdieu's (1986) forms of capital, this section aims to explore cultural capital, one of the least analysed types of wealth that refers to inherited or transmitted elements linked to what is commonly known as '*culture*'. According to Bourdieu, cultural capital can be divided into three different forms: the embodied state, which refers to long-lasting dispositions of the body and mind; the objectified state that is connected to cultural goods; and the institutionalised state, linked to educational qualifications. As mentioned in chapter 5, PLANEA (INEE 2016) contemplated a set of questions that were linked to the cultural capital of the students, which included, among others variables associated with parental support and expectations (embodied state), cultural goods (objectified state), and education (institutionalised state). Yet, as highlighted in chapter 5, PLANEA did not contemplate measures of cultural capital for schools, and therefore, some variables in the principals' questionnaires were selected according to Bourdieu's definition of cultural capital and/or which were similar to the ones in the students questionnaires. These measures included parental involvement (embodied state), cultural goods such as books and computers (objectified state), and the presence of full-time teachers for all classes (institutionalised

state). Thus, measures of cultural capital and its inequality for students and schools in Mexico were constructed following the same approach as the one used for economic and social capital. This section begins with a description of the results of the CFA and the examination of the normalised factor scores by type of school, size of locality, and state. In the last part of this section, the measures of cultural capital are used to calculate GE measures, in order to identify the levels of inequality that exist between students and schools.

Table 8.11 displays the results of the CFA of the variables linked to the students' cultural capital. Despite the low R-squared that some of the variables had (including Computer classes and the ones linked to support at home), they were included in the model as they were necessary to obtain the latent constructs (without them there was no convergence). It can be observed that the variables with the highest relationship to the cultural capital of the students were the ones linked to the level of education of the parents, in which the level of education of the father explained 70.1 percent of the variation of cultural capital, and the one of the mother 64.8 percent. These variables were followed by their expectations about their child's future, which explained 27.2 percent of the variance, and the number of books at home, which explained 21.2 percent.

Table 8.11: CFA Student cultural capital

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Father's level of education	1	0.837**	0.701
Mother's level of education	0.961**	0.805**	0.648
Parents' expectations of education	0.623**	0.522**	0.272
Number of books at home	0.55**	0.46**	0.212
Language classes	0.464**	0.389**	0.151
People at home helps studying	0.304**	0.254**	0.065
People at home aware of studies	0.183**	0.153**	0.023
Computer classes	0.087**	0.073**	0.005
Cultural Capital Students	***0.013****	***1***	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 144,057
Fit indices: Chi-square= 29,067.687 with 20 df, p=0.000, RMSEA= 0.103, CFI=0.905, TLI=0.867. ** p<0.01, * p<0.05.

Similarly, table 8.12 displays the factor loadings, significance level, and the R-squared of the observed and unobserved variables used in the construction of the schools' cultural capital measure. It can be noted that the variable linked to the institutionalised state, which in this case is the presence of a full teacher in front of all groups, had a very low R-squared (0.019); yet, similar to the students' cultural capital, it was included as it was needed to run the analysis. The variables associated to the embodied state of cultural capital, that is, the parents' involvement had the highest relation with the latent variable, explaining between 53.7 and 66.5 percent of the variation of the cultural capital of the schools. The schools' resources linked to this construct had a medium to small effect, explaining between 15.3 percent of the latent construct in the case of Computers, and 23.7 percent for TVs.

Table 8.12: CFA School cultural capital

VARIABLE NAME	COEFFICIENT	STANDARDISED COEFFICIENT	R-SQUARE
Parents asked about the progress of their children	5.991**	0.816**	0.665
Parents gave suggestions to support their children	5.604**	0.763**	0.582
Parents gave some notice to the principal	5.395**	0.733**	0.537
TVs for teaching	3.575**	0.487**	0.237
Books for students use	3.366**	0.458**	0.21
Computers for students use	2.874**	0.391**	0.153
Full teacher in front of all groups	1	0.136**	0.019
Cultural Capital School	***0.019****	***1***	

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529
Fit indices: Chi-square= 4,010.424 with 59 df, p=0.000, RMSEA= 0.144, CFI=0.642, TLI=0.599. ** p<0.01, * p<0.05.

The distribution of the normalised factor scores linked to the cultural capital of students and schools are displayed in figure 8.14. Similar to the economic and social capital scores, the values of cultural capital were normalised, that is, they range from 0 to 1, in which 0 denotes the lack of capital and 1 the maximum amount of capital. Both scores follow a normal distribution, with a skewness of 0.09 and a kurtosis of 2.71 for the students' capital, and a skewness of 0.33 and kurtosis of 2.7 for the schools one. The mean of the students' capital is

0.57, with a standard deviation of 0.17, and in the case of the schools' capital the mean is 0.40 with a standard deviation of 0.21.

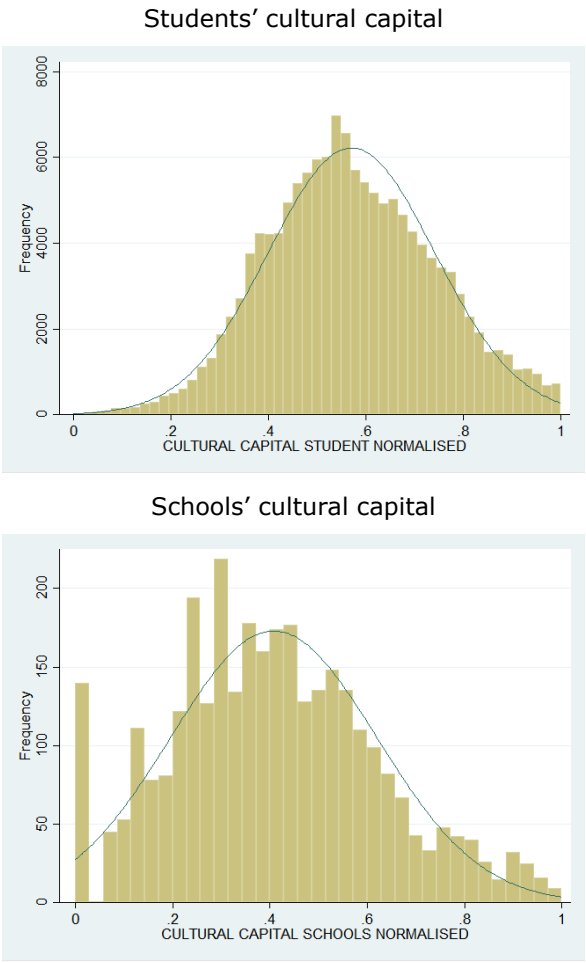


Figure 8.14: Distribution of cultural capital Indices

Figures 8.15 shows the boxplots of the cultural capital measures by type of school. In relation to the students' score and similar to economic capital, private schools have a notably higher level of cultural capital, with a mean score of 0.76, followed by both public schools with a mean of 0.57, TV schools with 0.45, and the type of school with the lowest mean were Community schools, with a mean of 0.39. The results of the Analysis of Variance showed that this variable explained 29.38 percent of the total variance in the cultural capital of the

students. In the same way, private schools had the highest mean for the school capital, with 0.56, and the lowest score was for TV schools, with 0.30 (Community schools not computed for principals' response). In this case, the variable type of school explained 21 percent of the variance of the schools' cultural capital. Although there is a lack of studies in Mexico that explore differences in cultural capital in the school context, the results are in line with the literature and information about schools presented in chapter 2, which indicated that wealthier students and schools seem to benefit from a better quality education, and they have more support and access to cultural goods.

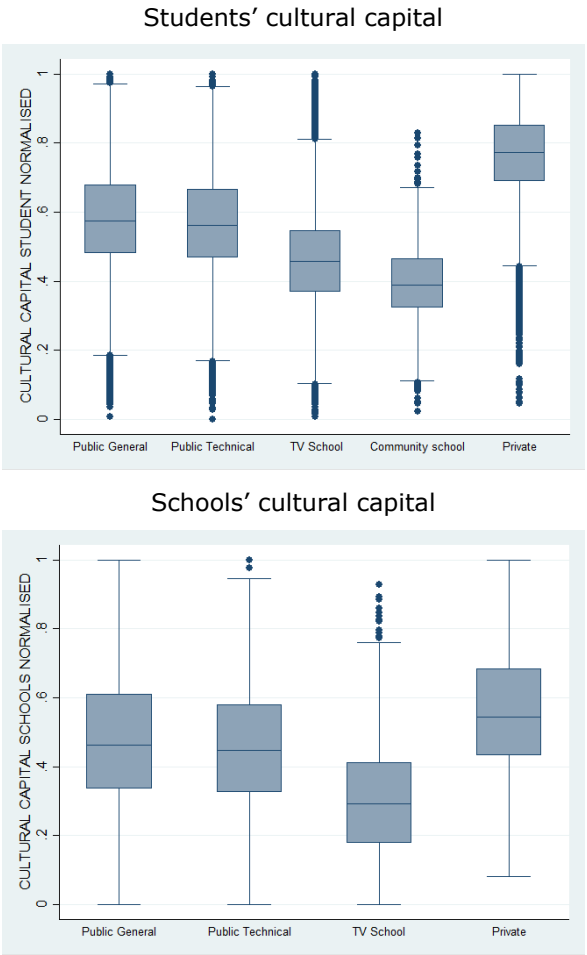


Figure 8.15: Boxplots cultural capital by type of school

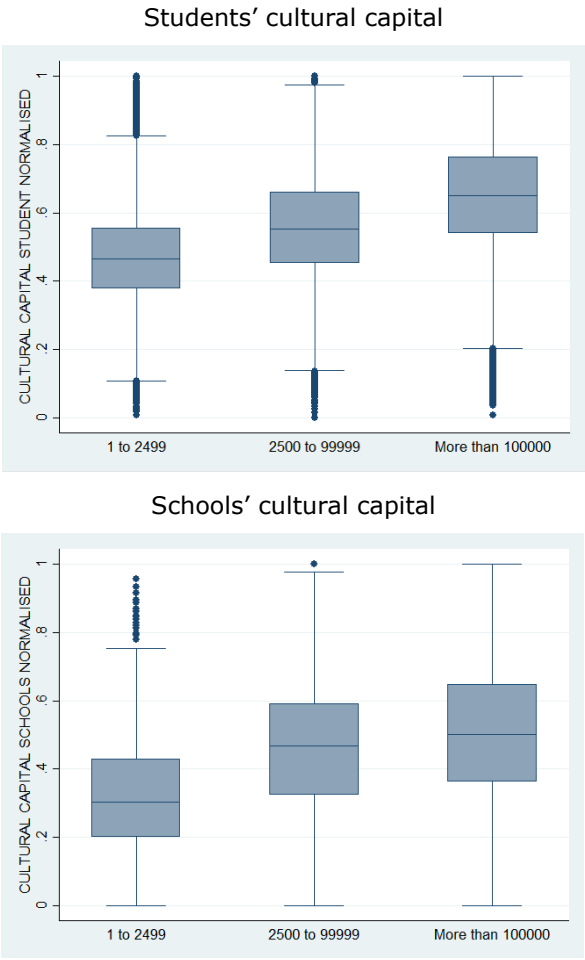


Figure 8.16: Boxplots cultural capital by size of locality

Figures 8.16 show the boxplots of the cultural capital measures by size of locality where it can be noted again that similar to economic capital, cultural capital increases with the size of the community. The smallest places had a mean of 0.47 in the students' capital and 0.31 in the schools one, and the largest cities had a mean of 0.64 in the case of the cultural capital of the students and 0.51 for the schools. The ANOVA showed a small-medium effect of the size of locality on the measures of cultural capital, in which these variables explained 19 percent of the variance of the students' capital and 17.3 percent in the case of the schools. In Bourdieu's (1987), these results suggest that cultural capital seems to define the social space in these places, and thus, it could be used to explain some observed differences of schools in Mexico. These differences between the different types of schools and localities are very

interesting not only for the purpose of this research, but also because as mentioned before, this form of capital and its effects has not been explored in Mexican schools before.

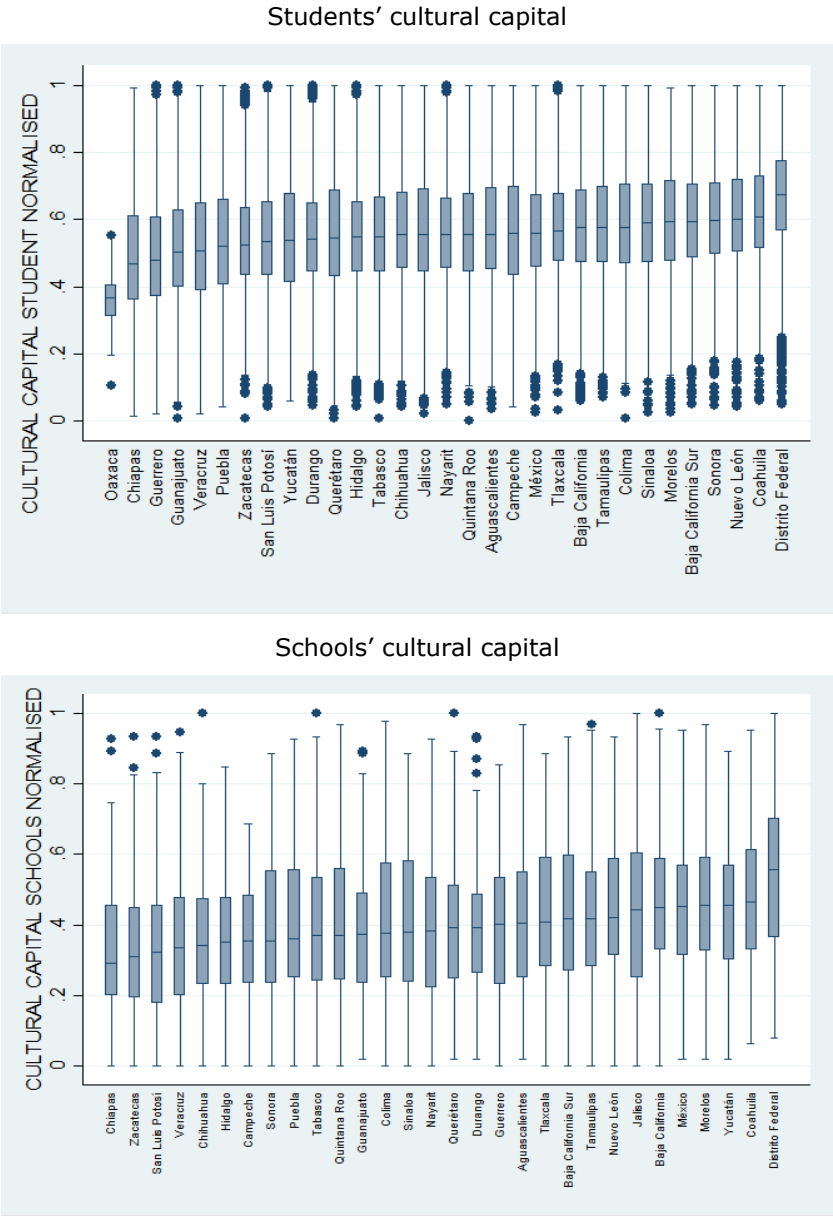


Figure 8.17: Boxplots of cultural capital by state

The differences in the cultural capital scores by state can be observed in figure 8.17. Although the results of the ANOVA showed that this variable explains only 4.8 percent of the

variability in the students' measure and 5 percent of the school one, there is a similar pattern to the one noted in the economic capital scores. It can be noted that some of the poorest states in the country had the lowest scores, while the wealthier ones had on average higher levels of cultural capital. For instance, in both cases, Mexico City, which is the wealthiest state in Mexico, had the highest levels of cultural capital with a mean value of 0.67 for the students and 0.55 for the schools. In contrast, Chiapas (the poorest state in the country) had the lowest score (Oaxaca is not taken into account as it has few responses) with a mean of 0.49 in the students' score and for the school one of 0.34.

Table 8.13: Student and School cultural Inequality

	Student cultural capital (normalised)	School cultural capital (normalised)
GE(0)	0.052	0.190
GE(1)	0.046	0.138
GE(2)	0.045	0.128

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
N= 144,057 for students. N= 3,529 for schools. Measures based on normalised factor scores resulting from CFA.

The inequality measures of the cultural capital of the students and schools can be observed in table 8.13. For both cases, inequality is higher at the bottom of the distribution as the Generalised Entropy measure that pays attention to this part (GE(0)) showed the highest score. One of the most interesting results is the fact that the GE(0) of the school cultural capital is the highest of all the forms of capital analysed in this chapter. This suggests that there are important differences between the schools in relation to the availability of cultural goods and other resources linked to cultural capital, including the involvement of parents in the education of their children. The fact that disparities seem to be larger at the bottom end of the distribution suggests a greater inequality amongst the most deprived schools, compared to the rest of them.

In order to explore more in-depth inequality in cultural capital, table 8.14 shows the GE measures of the students' score by type of school and size of locality. Similar to the economic capital results, Community schools showed the highest inequality, followed by TV and Public schools. The lowest levels of inequality are observed in Private schools, which means that

the level of cultural capital of the students in this type of school is more equal (or there are less differences), compared to the other types. In terms of the size of the locality, the smallest communities had the highest levels of inequality, and as the population increases, the inequality seems to decrease, which suggest that in urban areas students and schools have more equal access to this form of capital. For all cases inequality in cultural capital is higher at the bottom of the distribution and lower at the top.

Table 8.14: Student cultural Inequality by type of school and size of locality

	Type of School					Size of Locality		
	Public	Technical	TV School	Community schools	Private	1 to 2,499	2,500 to 99,999	100,000 and more
GE(0)	0.037	0.04	0.052	0.056	0.018	0.052	0.045	0.041
GE(1)	0.034	0.036	0.046	0.048	0.016	0.046	0.041	0.039
GE(2)	0.032	0.035	0.044	0.045	0.015	0.045	0.039	0.03

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 144,057.
Measures based on normalised factor scores resulting from CFA.

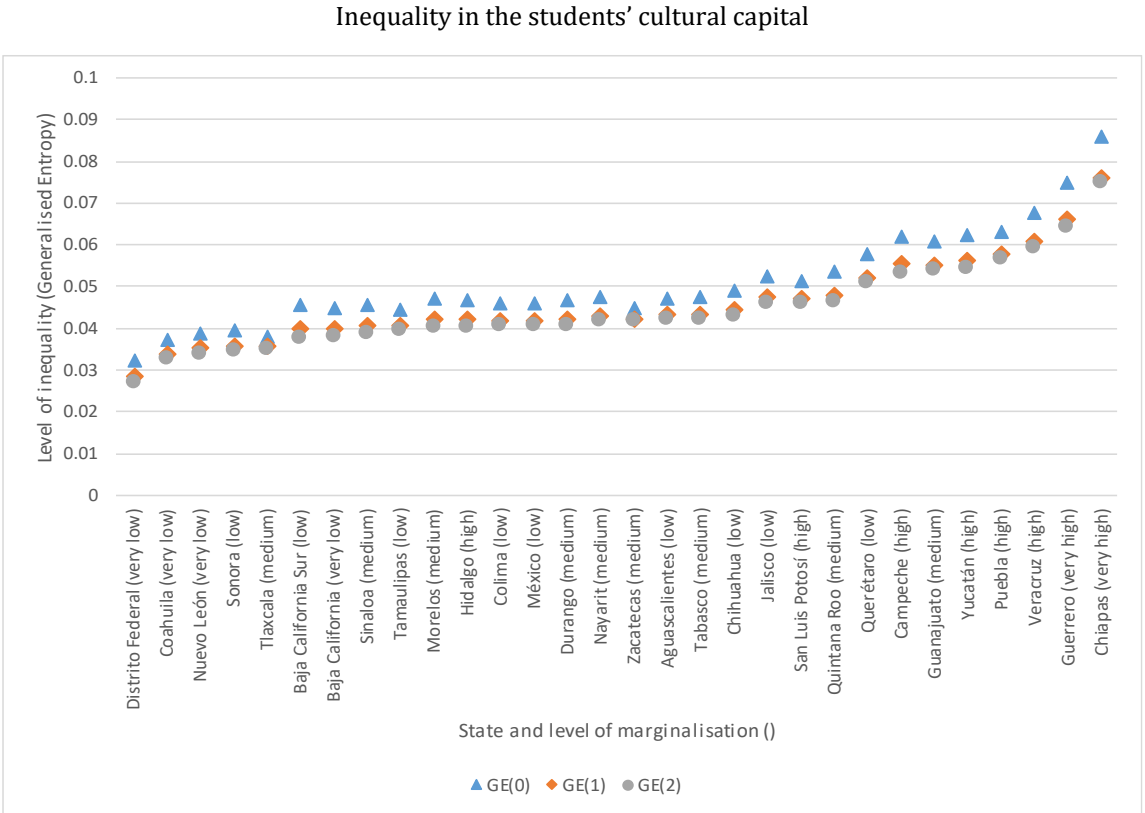


Figure 8.18: Generalised Entropy Indices of Student cultural capital by state

Figure 8.18 shows the GE measures by state, where it is evident the geographical differences that exists between the wealthier and the most deprived states. Similar to the results of economic capital, the lowest levels of inequality of the students' cultural capital are observed in Mexico City, whereas the highest inequality is again for Chiapas, the poorest state in Mexico.

Table 8.15: School cultural Inequality by type of school and size of locality

	Type of School				Size of Locality		
	Public	Technical	TV School	Private	1 to 2,499	2,500 to 99,999	More than 100,000
GE(0)	0.112	0.123	0.234	0.079	0.22	0.157	0.093
GE(1)	0.09	0.092	0.165	0.068	0.156	0.11	0.079
GE(2)	0.085	0.085	0.154	0.065	0.146	0.098	0.076

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016). N= 3,529.
Measures based on normalised factor scores resulting from CFA.
Table 8.15: School cultural Inequality by type of school and size of locality

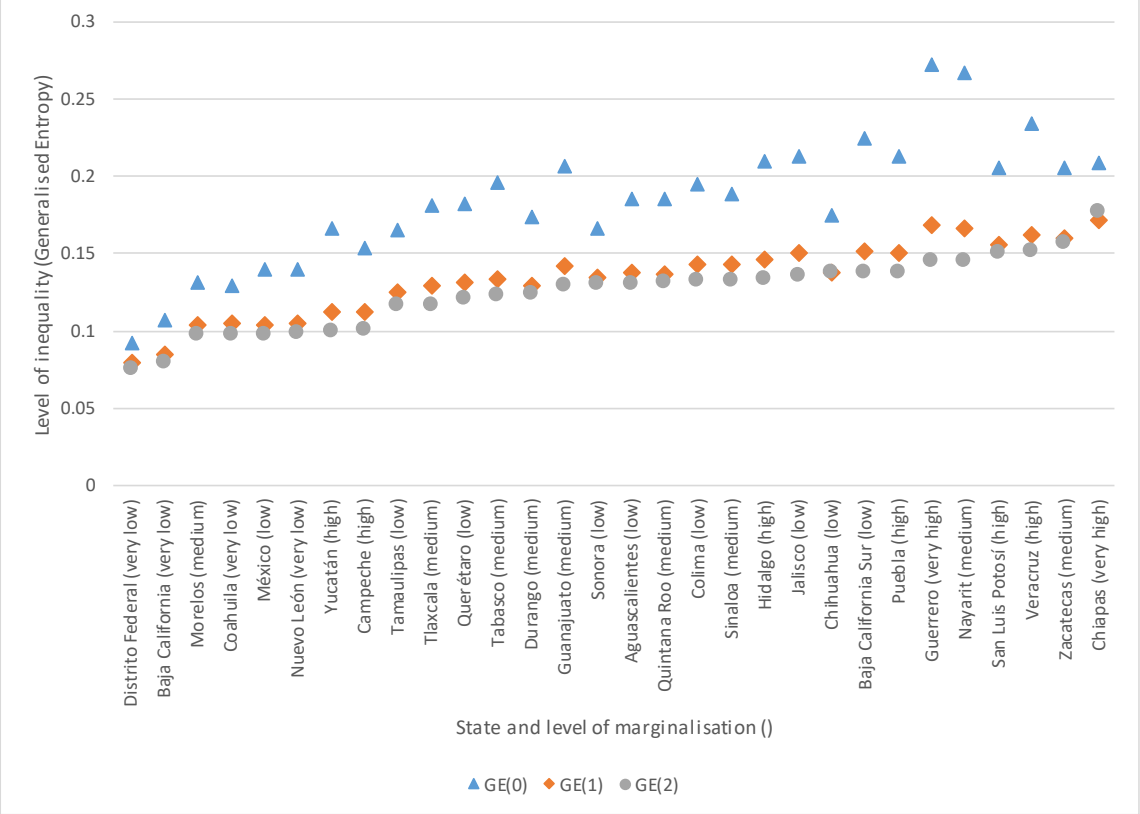


Figure 8.19: Generalised Entropy Indices of School cultural capital by state

Finally, the results of the different inequality measures of the schools' cultural capital by type of school and size of locality are displayed in table 8.15. As mentioned before, these scores show the highest levels of inequality of all the measures presented in this chapter, and as expected, TV schools, the poorest schools for which data is available, have the highest levels of inequality in cultural capital. Similar to the students' results, inequality in cultural capital is the highest in the smallest communities. The lowest levels of inequality are seen in Private schools and cities with a population over 100,000. It can be noted that again, the highest levels of inequality result from the most deprived schools, especially in the case of TV schools and the smallest communities. Although figure 8.19 shows results in line to previous findings (the most marginalised states have the highest levels of inequality), it is important to note that the GE measure that emphasises at the bottom of the distribution varies considerably between the states. Although inequality is always higher at this part of the distribution, in some states such as Guerrero and Nayarit, the inequality at the bottom is significantly higher than the one at the other parts of the distribution, suggesting that the most deprived schools have considerably less cultural capital than the rest of schools in these states. Similar to the analysis of social capital, the analysis of the effects of inequality in cultural capital is one of the original contributions of this thesis, and although the main purpose is to examine its link with the perceived frequency of ASB, the results presented here are very interesting as they suggest big differences in the capital of students and school between different places.

In this section measures of cultural capital of the students and schools were computed using the data available in the PLANEA survey. Cultural capital in both cases showed a strong link with the type of school, as the results of the Analysis of Variance showed that this variable explained 29.3 percent of the variation in the students' score and 21 percent in the schools' one. Private schools had a notably higher level of cultural capital compared to the other types, while the poorest type of schools (i.e. Community and TV schools) had the lowest levels of cultural capital. In relation to the size of the locality, this variable explained 19 percent of the variability in the students' capital and 17.3 of the schools' one, with the largest cities having the highest score and the smallest the lowest. It was also noted that the variable state showed similar patterns to the ones observed in the economic capital analysis, where the wealthiest states located in the central and northern part of the country had on average higher levels of cultural capital, and the southern region, which has higher levels of poverty,

had the lowest student' and schools' cultural capital. Although no previous analysis exists about cultural capital in Mexican schools, these findings are to some extent in line with the existing literature that suggests that the division between social classes has caused important differences between schools in relation to their resources, education, and pupils' performance (Saravi 2015).

This situation seems to be confirmed by the analysis of the inequality measures where, as revealed by the GE measures, the schools' cultural capital showed the highest disparities among all the scores analysed in this chapter. The GE measures of the school cultural capitals showed that TV schools and the smallest communities were considerably more unequal than the other types of schools and localities, and inequality was especially high at the bottom of the distribution. Similarly, inequality in the students' cultural capital was considerably higher in Community and TV schools, compared to the other types of schools; and in the same way, the smallest communities had the highest inequality scores. These findings suggest once again that the class divisions seen in Mexico have caused a segmentation of the society, where the wealthier students could benefit from a more equal social space and a better access to education, while those in the most deprived situations face more challenges than the rest of the students. Furthermore, important disparities were found between Mexican states, especially at the bottom of the distribution, which confirms that as noted by Bourdieu (1987), capital is what defines the social space, and could be used to explain other problems (i.e. the perception of ASB) that result from differences in any given particular place.

8.5 Schools effect and relationship between forms of capital

The previous sections have shown some features of the economic, social, and cultural capital of the students and schools in Mexico. Although this analysis has allowed the identification of some common elements of the newly created scores, there is not a clear picture of how these measures of capital relate to each other. For instance, the economic and cultural capital seem to have similar patterns in relation to the variables type of school, size of locality, and state; however, it is not possible to determine the extent of the relationship between them, so it is necessary to further examine this connection. Similarly, social capital does not seem to vary as a function of the variables described above, and thus, it is not possible to know if

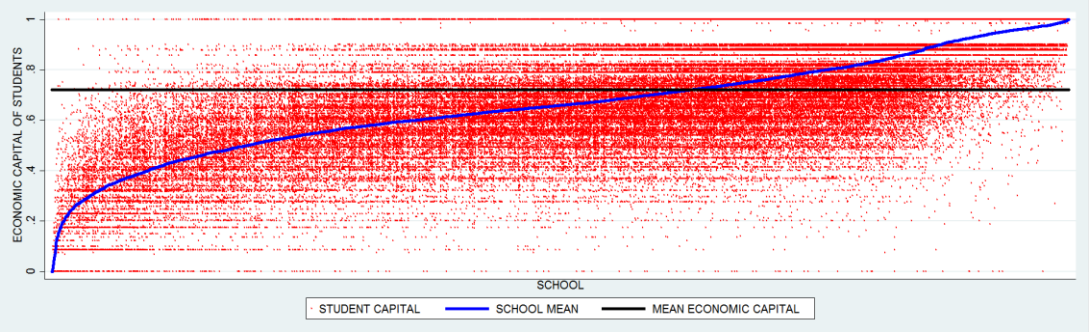
it relates to the other forms of capital. Hence, this section will introduce a brief analysis of the relationship between the measures of economic, social, and cultural capital of the students and schools. The section will analyse first the students' capital using a multilevel approach based on the idea that students are clustered within schools, followed by an exploration of the relationship between the schools' capital.

One of the main arguments behind the use of multilevel modelling for the analysis of the relationship between the students' capital is the fact that a direct or indirect effect of the school on each one of the students can be assumed, as the latter share some characteristics and are exposed to common elements. This approach seems to be necessary as the data related to the students in the PLANEA survey (INEE 2016a) is characterised by a hierarchical structure, that is, students nested within school. Indeed, the results of the analysis of the forms of capital presented in the previous section suggest that some characteristics of schools seem to be associated with the students' capital (especially their economic and cultural capital). What is more, because one of the key theoretical elements of this study is based on this assumption that individuals' are shaped by their own characteristics, and also of those of the world around them (Bronfenbrenner 1979), the use of an ecological approach seems appropriate. Although the analysis of the relationship between the schools and students capital are beyond the scope of this research, as pointed out in chapter 4, several authors have argued for the establishment of research based on interconnected elements at different levels (Bronfenbrenner 1979, 1994; Giddens 1984; Bottoms and Wiles 2003).

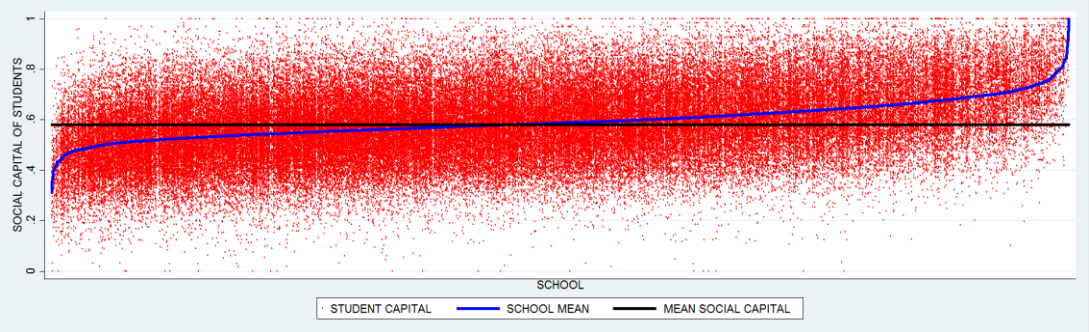
Figure 8.20 shows the variation of the students' capital scores between schools, where the black line indicates the mean of the capital across all the schools, the blue line the mean value for each one of the schools, and the red dots the individual score of each student. The graphs could be interpreted as a simple regression in which the only variable is the intercept of the students' capital, and thus, the figure shows the variation that exist between the individual students' capital, the mean for each school and the sample mean. Figure 8.20 shows a marked difference between the sample mean and the mean of each one of the schools, especially in the case of economic and cultural capital. This indicates that each school has a differentiated effect on the capital and that there is significant variation across the subpopulation, justifying in all cases the use of multilevel modelling in the analysis of the students' capital. In other words, the economic, social, and cultural capital of the students

seems to be influenced or associated with the school they attend, or in Bronfenbrenner's (1979) terms, the capital of the students is shaped by their interaction with other students and with objects and symbols in the school environment.

Variation of Students' economic capital scores between schools



Variation of Students' social capital scores between schools



Variation of Students' cultural capital scores between schools

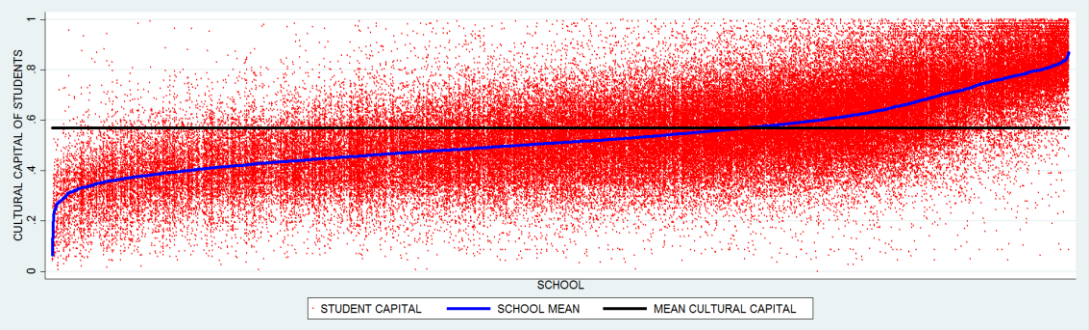


Figure 8.20: Variation of Students' capital scores between schools

Table 8.16: Multilevel Model of Student cultural capital

Model:	0	I	II	III
ECONOMIC CAPITAL				
Constant	0.663**	0.664**	0.455**	0.471**
S.E.	(0.003)	(0.003)	(0.002)	(0.003)
Social Capital		*-0.001*		*-0.029*
S.E.		(0.003)		(0.003)
Cultural Capital			0.394**	0.396**
S.E.			(0.003)	(0.003)
Between School Variance	0.032**	0.032**	0.019**	0.019**
S.E.	(0.000)	(0.000)	(0.000)	(0.000)
Within School Variance	0.024**	0.024**	0.022**	0.022**
S.E.	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.568**	0.568**	0.461**	0.458**
S.E.	(0.006)	(0.006)	(0.006)	(0.006)
Log likelihood	52213.713	52212.91	59382.736	59427.183
-2*log-likelihood	-104427.426	-104425.82	-118765.472	-118854.366
SOCIAL CAPITAL				
Constant	0.591**	0.604**	0.565**	0.581**
S.E.	(0.001)	(0.001)	(0.001)	(0.002)
Economic Capital		-0.018 **		-0.035**
S.E.		(0.001)		(0.002)
Cultural Capital			0.049**	0.064**
S.E.			(0.002)	(0.002)
Between School Variance	0.003**	0.002**	0.003**	0.003**
S.E.	(0.000)	(0.000)	(0.000)	(0.000)
Within School Variance	0.017**	0.017**	0.017**	0.017**
S.E.	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.147**	0.140**	0.160**	0.149**
S.E.	(0.003)	(0.003)	(0.004)	(0.003)
Log likelihood	78614.188	78647.437	78749.384	78866.029
-2*log-likelihood	-157228.376	-157294.874	-157498.768	-157732.058

CULTURAL CAPITAL				
Constant	0.534**	0.356**	0.496**	0.319**
S.E.	(0.002)	(0.001)	(0.002)	(0.002)
Economic Capital		0.271**		0.269**
S.E.		(0.002)		(0.002)
Social Capital			0.063**	0.061**
S.E.			(0.002)	(0.002)
Between School Variance	0.014**	0.006**	0.014**	0.006**
S.E.	(0.000)	(0.000)	(0.000)	(0.000)
Within School Variance	0.016**	0.015**	0.016**	0.014**
S.E.	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.467**	0.300**	0.474**	0.308**
S.E.	(0.006)	(0.005)	(0.006)	(0.005)
Log likelihood	80446.28	88051.873	80727.62	88350.831
-2*log-likelihood	-160892.56	-176103.746	-161455.24	-176701.662

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
N= 144,057. ** p<0.01, * p<0.05

The results of the variance component model of the student capital (i.e. using only random effects, in this case the schools, and not any other explanatory variable), show that the overall school mean of the student economic capital score is 0.664 with an estimated between school variance of 0.033, the variance between students within schools is estimated as 0.025. The variance-partitioning coefficient (VPC) shows an intraclass correlation of 0.56, that is, 56 percent of the variation in the economic capital scores of the students can be attributed to differences between schools. In relation to social capital, the overall school mean is 0.592, with a between school variance of 0.003 and a within school variance of 0.018. The VPC is 0.142, which means that 14.2 percent of the variance in the social capital scores of the students is due to differences between schools. Finally, the school mean of the Student cultural capital score is 0.534, with an estimated variance between schools of 0.014 and 0.016 within school. There is an intra-class correlation of 0.467, so 46.6 percent of the variation in the cultural capital scores of the students can be attributed to the differences between schools. The effect of schools on the economic and cultural capital of the students seems to be in line with the results of the previous section; yet, the considerably smaller

effect of schools on social capital could confirm that other elements explain better this form of capital. This is a very interesting finding because, as discussed in chapter 3, different aspects of social capital have been linked to ASB in the school context, but many of them could be associated more to the characteristics of the students than to the elements of their schools.

In order to analyse the relationship between the different forms of capital of the students, table 8.16 presents the results of the Variance Component and random intercept models for each type of capital. Random intercepts models are multilevel models that take into account explanatory factors, so in this case it will be analysed the variation that occurs in the capital scores at the student and school level after controlling for the other forms of capital. The first thing that can be observed is the fact that the social capital is not significant in the economic capital model, and therefore, these results suggest that economic capital scores do not vary as the level of social capital does. These findings seem to contradict some of the findings of chapters 2 and 3, where some students and schools of poor areas have been associated with bad social connections, whereas those from affluent background are link to a good social capital. However, when both, social and cultural capital are included in the model of economic capital, social capital is significant, and there is a small negative effect in which the economic capital of the students decreases by 0.029 when the social capital score increases in one unit. This could be linked to the fact that some of the most economically deprived students (i.e. those attending Community and TV schools, and those who live in small localities) have a higher level of social capital; yet, it is not possible to establish a general conclusion because the effect is very small. As expected, cultural capital seems to be strongly correlated to the economic capital of the students, where an increase in one unit in the cultural capital score (or when students have the maximum level of capital) is linked to an increase of 0.394 in the economic capital score.

Confirming previous results, in the analysis of social capital presented in table 8.16, economic capital is negatively associated with social capital, although the effect seems to be very small. Similarly, the cultural capital of the students has a very small effect on social capital. Both forms of capital hardly changed the intraclass correlation, which means that after controlling for economic and cultural capital, the clustering effect did not change considerably. These findings confirm the results of the previous section, as social capital

does not seem to be linked to any other individual or environmental element, and therefore, suggesting that this form of capital depends on other characteristics that are not explored in this thesis. Finally, the analysis of cultural capital shows that as expected, students with higher levels of economic capital also have higher levels of cultural capital. After controlling for economic capital, 28.57 percent of the variance in the cultural capital scores of the students is due to differences between schools, compared to 46.67 in the model without any exploratory variable. Lastly, social capital had a very small effect on the cultural capital score and did not change any variance of the model.

The relationship between the different forms of capital of the schools show similar patterns to the ones of the students, as shown in table 8.17. It can also be noted that in all cases, the correlation between social capital and the other forms of capital is very weak, explaining only 2 percent of the variance on the economic capital and 4 percent in the cultural capital. The strongest relationship was once again between economic and cultural capital, in which cultural capital accounted for 14 percent of the explained variability in the economic capital of the schools, and economic capital explains 14.2 percent of the variance of cultural capital. The coefficient of cultural capital in the economic capital model is 0.321, and the one of economic capital in the cultural capital model is 0.438. These coefficients indicate that for every additional unit of cultural capital, an increase of 0.321 in the economic capital score is expected; and for an increase of one in the economic capital score, the cultural capital of schools increases, on average, 0.438. Therefore, after analysing both the students and the school capital, it can be concluded that there is a positive relationship between the levels of economic and cultural capital, or in other words, wealthier students and schools (in economic terms) have higher levels of education, support in their studies, and access to cultural goods. Additionally, it can be stated that despite the association of higher levels of social capital to wealthier students and schools in Mexico, this hypothesis does not seem to be true, and thus, there are other elements that could better explain the perception about the social connections and coexistence.

Table 8.17: OLS Regressions of School capital

Model:	I	II	III
ECONOMIC CAPITAL			
Constant	0.593**	0.508**	0.485**
S.E.	(0.015)	(0.006)	(0.015)
Social Capital	0.063**		*0.033*
S.E.	(0.021)		(0.019)
Cultural Capital		0.321**	0.319**
S.E.		(0.013)	(0.014)
R-squared	0.002	0.140	0.141
Adjusted R-squared	0.002	0.140	0.141
SOCIAL CAPITAL			
Constant	0.683**	0.692**	0.678**
S.E.	(0.009)	(0.005)	(0.009)
Economic Capital	0.043**		*0.026*
S.E.	(0.014)		(0.015)
Cultural Capital		0.046**	0.038**
S.E.		(0.012)	(0.013)
R-squared	0.002	0.004	0.005
Adjusted R-squared	0.002	0.004	0.004
CULTURAL CAPITAL			
Constant	0.127**	0.340**	0.081**
S.E.	(0.012)	(0.018)	(0.020)
Economic Capital	0.438**		0.435**
S.E.	(0.019)		(0.019)
Social Capital		0.094**	0.066**
S.E.		(0.024)	(0.023)
R-squared	0.140	0.004	0.143
Adjusted R-squared	0.140	0.004	0.142

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
N= 5,529. ** p<0.01, * p<0.05

This section explored the relationship between the economic, social and cultural capital of the students, as well as the capital of the schools. Because the students' data was characterised by a hierarchical structure (i.e. students clustered in schools), the first part of the analysis consisted on exploring the variation that exists in each one of the forms of capital as a function of differences between schools. The results of the variance component

models showed that all the forms of capital of the students had a strong school effect, especially in the case of the economic and cultural capital, in which school differences accounted for 57.16 and 46.67 percent of the variance respectively. After adding the different forms of capital as explanatory variables to the models, it was concluded that the strongest relationship was between economic and cultural capital, where students with higher levels in one of those forms of capital had, on average, also higher levels on the other type. Social capital did not show strong correlation to cultural capital, and was not significant in the model of economic capital, and thus, it can be concluded that the perception of social connections and coexistence in the school context, is not associated with the economic wealth or culture of the students. Furthermore, this situation also seems to apply to schools, as the single-level models of the schools' capital showed similar results to the students' models, where economic and cultural capital had a stronger correlation between them, compared to social capital (which explained only between 2 and 4 percent of the variance).

8.6 Conclusions

This chapter focused on the construction and analysis of measures of economic, social, and cultural capital and their inequality in schools in Mexico. Following the findings of the literature review on ASB in schools presented in chapter 3 and based on the theoretical framework of this thesis (chapter 4), the measures were based on Bourdieu's (1986) division of capital. Bourdieu's approach to capital and its division into different forms beyond economic assets proved to be the best approach for the multidimensional analysis of capital in the school contexts, as important differences between economic, social, and cultural capital were identified in this chapter. The measures of capital were based on factor scores resulting from CFA because, as argued in chapter 4 and 6, this method was the best alternative as it provided a solution to overcome some challenges of measures based on a multidimensional approach, including the measurement of unobserved variables and the use of weights. The analysis of inequalities was based on GE measures, which also proved to be the best approach for this research because they allow the examination of inequalities at different parts of the distribution.

An exploration of the capital measures exposed the differences that exist between various types of schools, localities of different sizes, and the states in which the schools were located.

These differences were especially noticeable in the economic, and cultural capital, in which some of the poorest schools had on average the lowest levels of capital. For instance, Community schools, which are attended mainly by indigenous students, and TV schools, located mostly in rural and disconnected areas, had the lowest mean levels of economic and cultural capital for both, the students and the schools' score. Furthermore, the smallest localities and the most marginalised states (most of which are located in the south of the country) had lower levels of these forms of capital, compared to the largest cities and the least marginalised states. In contrast, the analysis of social capital, which is mainly based on the perception of social connections and the school environment, did not showed significant differences between the different types of schools, the size of localities, or the state.

Finally, this chapter provided enough evidence to support the use of an ecological approach, as it was shown that there is a strong school effect in the measures of capital of the students, especially in relation to economic and cultural capital. The analysis between the forms of capital showed a strong relationship between economic and cultural capital for both, students and schools, in which an increase in one score was linked with higher levels of capital in the other. This finding seems to be in line with official statistics and previous studies of schools in Mexico, which have noted important differences between the wealthiest and most deprived student and schools in relation to their resources, strategies, infrastructure, performance and achievement (Saravi 2015). However, in both cases social capital did not seem to be correlated to any of the other forms of capital, which raises some concerns about the hypothesis that deprivation and inequality in economic capital affect the formation of strong social connections, and even reduce a positive coexistence in the school context (and could even affect the perception of ASB). Therefore, in order to untangle the link between the different forms of capital, their associated inequalities, and the perceived frequency of ASB in schools, the following two section will present an analysis of based on the measures presented here and those linked to the perceived frequency of ASB (showed in chapter 7).

Chapter 9: The relationship between the perception of antisocial behaviour in schools and economic, social, and cultural capital.

9.1 Introduction

The results of chapter 8 showed some of the marked differences that exist in the capital of students and schools in Mexico, especially in relation to economic and cultural capital. It was found that some of these differences were associated not only with their own characteristics but also with those of their environment, and therefore, confirming the use of an ecological approach as the one suggested by Bronfenbrenner (1979) in order to explore the effects of the different forms of capital and their inequalities in the school context. These findings result of special importance for this research because, as highlighted in chapters 2 and 3, many studies in the past have drawn conclusions about the effects of poverty and inequality based only on a few characteristics of students and schools, leading to the establishment partial or inconclusive ideas that limit our understanding about the social world. Therefore, based on the theoretical and methodological perspectives introduced in chapter 4 and the methods described in chapter 6, this chapter will analyse the way in which the perceived frequency of ASB is associated with economic, social, and cultural capital in the school context (i.e. students and secondary schools in Mexico), and their inequalities.

The chapter is divided into three main sections, each one with the purpose of analysing the relationship between each form of capital, the inequality in these measures of capital, and the perceived frequency of ASB of students and principals. As noted in chapter 6, the analysis of the students' perceptions is based on Multilevel Modelling as the data follows a hierarchical structure (i.e. students nested within schools). Yet, because all the information linked to the principals is at the school level (since there is only one principal per school), that analysis is carried out using a single level OLS regression. It is important to note that in line with the analysis of the measures of the perceived frequency of ASB and the forms of capital presented in chapters 7 and 8, the results include two important categorical variables that account for a large part of the variance of these measures: type of school and size of locality. It can also be noted that because the analysis of all the forms of capital followed the same rationale, only the results of economic capital will be explained in detail, and the

discussion of social and cultural capital will focus only on the most important aspects of the models.

In relation to economic capital, the findings of this chapter confirmed to some extent the findings of Pridemore (2011), as the analysis of either capital or inequality separately showed a strong relationship with the perceived frequency of ASB of the students. Yet, when using measures for both economic capital and its inequality together, inequalities do not seem to be a good predictor of their perceived frequency of ASB. Nonetheless, in the analysis of the principals, the disparities between students in economic capital were the strongest predictor of their perceived frequency of ASB, increasing considerably their perception. In both cases, the average level of the students' capital seems to be a strong predictor of the perceived frequency of ASB, suggesting that differences between schools in economic capital are important to explain this problem. Similarly, the results of the relationship between social capital and the perceived frequency of ASB showed that for both students and principals, their perception about social connections and coexistence in the school context (i.e. social capital) and the average level of the students' capital were strong predictors of their perceived frequency of ASB, always decreasing it. Lastly, the analysis of cultural capital showed that also the average level of the students' capital was an important predictor of the perceived frequency of ASB for both, students and principals. Interestingly, the analysis of the students showed that GE measures that focus at the top and bottom of the distribution, that is, when there are either very wealthy (GE(0)) or very deprived students (GE(2)) decreased their perceived frequency of ASB, while the measure that puts equal weighs to all parts of the distribution (GE(1)) increased it.

9.2 Economic capital and perceived ASB

Although the relationship between economic deprivation and ASB is one of the most discussed topics in criminological research, as discussed in chapter 4, most analyses have been based on outdated theories and measures (mainly based on income) that often lead to partial or misleading results. Similarly, many studies about the effects of inequalities are based on measures that focus on income, and thus, they have raised many concerns among scholars mainly because individuals are known to have very different needs, some of which cannot be measured in monetary terms (Maasoumi 1999). Thus, the economic capital of

students cannot be calculated using an income-based measure because most of them do not have a job, and thus, do not receive payment for their activities. Furthermore, some essential needs in their households and schools cannot be converted to money, as they might depend on other non-monetary factors such as access to facilities or public services. Therefore, using the measures developed in chapter 7, the analysis presented here aims to overcome some of the technical and theoretical limitations of studies based on traditional income approaches by presenting an analysis of the effects of economic capital based on a multidimensional approach. By using measures of both capital and inequality together, this analysis will also aim to contribute to the discussion about the effects of inequalities over and above poverty (or deprivation). Lastly, because the inequality measures developed in chapter 8 were based on Generalised Entropy measures (GE), this section aims to examine the effects of economic inequality at different parts of the distribution (e.g. very poor people compared to the rest, differences across the distribution, or considerably richer people).

The analysis is divided into three different subsections. The first one investigates the link between the variables used for the construction of the economic capital measures and the perceived frequency of ASB. The following two subsections analyse the relationship between the measures of economic capital and inequality constructed in chapter 8 and the perceived frequency of ASB of the students and principals, respectively. This analysis examines first the effect of capital and inequality separately, and then the effect of these measures together in order to analyse the effects of poverty or deprivation over and above inequality (see Pridemore 2011). Due to their importance in the design of PLANEA (INEE 2016), and because important differences in the capital of both students and schools were found between different types of schools and localities, the final models presented in this section will control for both of these elements.

The results confirm to some extent the work of Pridemore (2011), showing that that after controlling for economic capital and type of school, the inequality measures did not explain the perceived frequency of ASB of the students. However, this did not happen in the analysis of the perception of the principals, and indeed, inequality across the whole distribution (GE(1)) had the strongest relationship with the perceived frequency of ASB. The results also showed that the average level of the students' economic capital, that is, the average of economic capital of the students in each school, had a strong relationship with the perceived

frequency of ASB of students and principals, suggesting that differences between schools are important to explain this problem. The type of school and size of locality did not have a remarkable effect on the perceived frequency of ASB of the students, however, principals of TV and Private schools seem to have considerably lower levels of perceived frequency of ASB, compared to those from Public schools. Overall, the findings of this section suggest that the individual economic background and the resources allocated to each school are not important to explain the perception of ASB in schools. However, the fact that the average level of the students' capital was an important predictor for the perception of both students and principals (increasing the perceived frequency of ASB), confirms that the most economically disadvantaged places do not have the highest levels of ASB, and suggests that other environmental factors could explain these problems but only among some groups.

9.2.1 Variables of economic capital and perceived ASB

To untangle the complex relationship that exists between economic capital and the perceived frequency of ASB in schools, the first step (which was replicated for the other two forms of capital) was the analysis of the association between the variables used for the construction of the capital scores and the dependent variable. Hence, table 9.1 presents the correlations between the measures of the student's perceived frequency of ASB and the availability of some assets in their household (more details about the variables used for the construction of the economic capital scores is presented in chapters 5 and 8). Because all the variables used for the creation of the measures of economic capital are binary (they take a 0 (not available), 1 (available) value), a type of Pearson's correlation known as point-biserial correlation coefficient is used (Salkind 2007); however, for the purpose of this thesis the correlation will be referred only as Pearson's r. The value of Pearson's r lies between -1 and +1, helping in determining not only the strength but also the direction of the relationship. A value of 0 indicates that there is no relationship between the variables, and a perfect relationship will take a value of -1/+1, depending on the direction of it.

The results of table 9.1 show that all the variables, including the economic capital scores, are statistically significant, and in all cases, the relationship is positive. This means that the increased availability of assets in the students' household (economic capital) is linked to a higher perceived frequency of ASB, or in other words, economically disadvantaged students

perceive there to be less ASB in their schools. However, it can also be observed that the strength is very weak, and even the variables with the strongest correlation (gas, internet, and computer) have a small association with the perceived frequency of ASB ($r<0.15$). At the bottom of the table, the results of the Economic Capital Score show a higher correlation with the perceived frequency of ASB than the rest of the variables (all of which were used to compute it). Although the availability of some elements shows a higher correlation with the perceived frequency of ASB than the latent construct (i.e. economic capital scores), the purpose of this study is analysing the economic situation of students, and not only some elements. What is more, this situation demonstrated the importance of a multidimensional approach for the calculation and analysis of economic capital, as the use of proxies could yield partial results or even be misleading (as some students could have access to some elements with high scores but not to others). These results could contradict some previous research that indicates that more deprived places have higher levels of ASB (Sampson, Morenoff, and Gannon-Rowley 2002), yet, a more in depth analysis is needed as the direction of the correlation might be the result of other factors such as geographical differences, type of school and/or size of locality.

Table 9.1: Correlation: economic capital of students and their perceived frequency of ASB.

VARIABLE NAME	Pearson's r
Gas	0.130**
Internet	0.120**
Computer	0.113**
Washer	0.101**
Microwave	0.089**
Refrigerator	0.083**
Pay TV	0.065**
DVD or Blu-ray	0.062**
Car or van	0.056**
Home Phone	0.051**
Television	0.042**
Electric Light at home	0.018**
Economic Capital Student	***0.137****

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 144,057. ** p<0.01, * p<0.05.*

Table 9.2: Correlation: economic capital of schools and principal's perceived frequency of ASB.

VARIABLE NAME	Pearson's r
Drainage	0.289**
Toilet for adults	0.222**
Water for toilets	0.191**
Water from public network	0.168**
Patio	0.163**
Electricity everyday	0.117**
Classroom	0.104**
Toilet for boys	0.061**
Electricity from public network	0.053**
Toilet for girls	0.053**
Fence	0.041*
Sufficient amount of water	*0.011*
Blackboard or white board	*-0.004*
Books	-0.068**
Computers	-0.126**
Video devices	-0.174**
Desks	-0.192**
TVs	-0.258**
Economic Capital School	***0.051****

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

Table 9.2 shows the Pearson's correlations between the variables linked to the economic capital of the school and the principals' perceived frequency of ASB. It can be observed (and indeed as described in chapter 5) that these variables show the availability of infrastructure, equipment, and services of each school. The results of the correlation show that two variables were not statistically significant (sufficient amount of water in the school and the availability of a board), suggesting that neither of these variables are linked to the perceived frequency of ASB in schools. Yet, as the purpose of this thesis is the analysis of the effects of economic capital and not of particular elements, these findings do not affect the results of this research. Interestingly, it can be noted that all those aspects of the infrastructure of the school connected to basic or essential services are positively correlated to the perceived frequency of ASB of principals (e.g. drainage, toilets, electricity, etc.), while the goods mainly

linked to educational activities showed a negative correlation (e.g. TVs, desks, video devices, etc.). This could be in line with previous findings, suggesting once again that the most economically disadvantaged schools could have the lowest levels of perceived frequency of ASB, and a decrease in economic capital could still be associated with higher perception of ASB but only in some contexts. However, a more in-depth exploration is also needed to confirm or refute this assumption. Although some of the variables showed a higher correlation with the perceived frequency of ASB compared to the students' analysis, the strength of the correlation remains low. However, the scores of student's economic capital (displayed in table 9.1) showed a stronger correlation compared to the ones from the principals (r = 0.137 and 0.051 respectively), suggesting that the students perceived frequency of ASB is more influenced by their own levels of economic capital than principals' are by the capital of the school.

9.2.2 Economic capital and students' perceived ASB

Table 9.3 shows the results of a series of multilevel models of the relationship between the students' perceived frequency of ASB at school and economic capital and its inequality. As mentioned in chapter 6, multilevel modelling is the best approach to analyse the perception of students for two reasons. The first one is that in the data of PLANEA (INEE 2016), students are nested within schools, and therefore, this technique addresses the effect of individual and school level variables. The second reason is that due to this clustering, it is assumed that all those students that attend the same school share common factors and characteristics that might influence their behaviour, including their perception of ASB. This assumption goes in line with the purpose and theoretical framework of this research, as it aims to investigate and incorporate elements at different levels analysis using an environmental approach (Bronfenbrenner 1979, 1994; Bottoms and Wiles 2003). Indeed, as demonstrated in chapter 8, the results of analysis of the relationship between the forms of capital confirmed that this method is the best approach to examine the students' characteristics because there are noticeable differences between the sample mean and the mean of each one of the schools (i.e. random effects). That means that the average level of economic capital of all the students that took part in the PLANEA survey is considerably different to the average level of economic capital of the students for each school.

Table 9.3: Multilevel Model of students' perceived ASB (Economic Capital and Inequality).

Model:	0	I	II	III	IV	V	VI
Constant	0.379**	0.339**	0.412**	0.370**	0.155**	0.246**	**0.243****
S.E	(0.001)	(0.002)	(0.002)	(0.003)	(0.012)	(0.017)	(0.017)
STUDENT LEVEL							
Student Economic Capital		0.060**		0.051**	0.034**	0.034**	0.034**
S.E		(0.003)		(0.003)	(0.003)	(0.003)	(0.003)
SCHOOL LEVEL							
Ineq. Stud. Eco. Capital							
GE(0) *At the bottom*			0.096**	0.072**	-0.074**	*-0.022*	*-0.015*
S.E			(0.010)	(0.010)	(0.013)	(0.013)	(0.013)
GE(1) *Across the distrib.*			-2.205**	-1.722**	1.028**	*0.261*	*0.172*
S.E			(0.211)	(0.210)	(0.278)	(0.263)	(0.264)
GE(2) *At the top*			1.204**	0.951**	-0.435*	*-0.068*	*-0.033*
S.E			(0.169)	(0.166)	(0.211)	(0.198)	(0.197)
Mean Stud. Eco. Capital					0.363**	0.248**	**0.240****
S.E					(0.017)	(0.020)	(0.022)
School Economic Capital					-0.090**	-0.026*	-0.027*
S.E.					(0.013)	(0.012)	(0.012)
Type of School *(ref. Public School)*							
Public Technical						*0.005*	*0.005*
S.E						*(0.004)*	*(0.004)*
TV School						-0.075**	-0.069**
S.E						(0.004)	(0.005)
Private						-0.085**	-0.080**
S.E						(0.006)	(0.006)
Size of locality *(ref. 1 to 2,499)*							
2,500 to 99,999							0.027**
S.E							(0.004)
More than 100,000							*0.004*
S.E							(0.005)
Between school variance	0.010**	0.009**	0.009**	0.009**	0.007**	0.006**	0.006**
	(0.000)	(0.000)	(0.000)	*(0.000)*	*(0.000)*	(0.000)	(0.000)

Within school variance	0.037**	0.037**	0.037**	0.037**	0.037**	0.037**	0.037**
	(0.000)	(0.000)	(0.000)	*(0.000)*	*(0.000)*	(0.000)	(0.000)
ICC	0.224	0.207	0.206	0.197	0.174	0.146	0.143
	(0.005)	(0.004)	(0.004)	*(0.004)*	*(0.004)*	(0.003)	(0.003)
Log likelihood	25899.6	26071.2	26046.5	26166.57	25650.69	25924.2	25929.59
-2*log-likelihood	-51799	-52142	-52093	-52333.1	-51301.38	-51848	-51859.2

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 144,057. ** p<0.01, * p<0.05*

The first important thing to note in the results of table 9.3, is that, as indicated by the variance partition coefficient or intra-class correlation (ICC) of the Variance Component Model (model 0), the overall effect of the schools on the perceived frequency of ASB of the students is 0.224. That means that 22.4 percent of the variation in the perceived frequency of ASB is explained by differences between schools. This suggests that, in this model (and indeed in all the models presented in table 9.3) most of the variation in the perceived frequency of ASB of students is explained by differences within schools, that is, the differences that exists between the students of each school. Model I shows the results of the model that only takes into account the effect of the students' economic capital, where it can be observed that although the effect is small, there is an improvement in the model fit (-2*log-likelihood decreases) compared to the one without any explanatory variable (model 0). This suggests that despite the small effect, the economic capital of the students is an important predictor of the perceived frequency of ASB, and as noted in the rest of the models, this effect always remains significant.

Model II shows how inequality in the students' economic capital at different parts of the distribution affects the perceived frequency of ASB (without taking into consideration the economic capital of the students or any other variable). Although the fit statistics show that the model seems to be an improvement from the Variance Component Model, Model II seems to be less accurate than Model I, suggesting that economic capital is a better indicator of the perceived frequency of ASB than its inequality. The measures of inequality in the students' economic capital confirm, as highlighted by some scholars (Atkinson 1970; Marlier and Atkinson 2010; Maasoumi 1986), the importance of using measures that pay attention to

different parts of the distribution, as their results show a remarkable difference in their size and effect. GE(0) and GE(2) seem to increase the perceived frequency of ASB, contrasting to GE(1), where higher levels seem to decrease this perception. The size of the effect is especially large in the case of GE(1) and GE(2). These results could be interpreted in the following way: while an increase in the overall levels of inequality (GE(1)) is linked to a lower perceived frequency of ASB, an increase in the presence of very poor students (GE(0)) or very wealthy students (GE(2)) is associated with higher levels in this perception. The relationship between GE(1) and the perceived frequency of ASB has the opposite effect to that expected based on previous research. However, as found in previous sections, this effect could be explained by other environmental factors (such as differences in type of school or locality size) or could be a consequence of the effect model misspecification.

Therefore, the subsequent two models incorporate different measures of economic capital. In model III the economic capital of the students is added back, and model IV adds the mean of student economic capital per school (i.e. the average level of individual economic capital with each school), alongside school economic capital. When these variables are included in the models, the students' inequality measures change in their intensity and direction, confirming the hypothesis that models that only take into account inequality can pick up other effects linked to economic capital, and hence, could push researchers to make false statements about the effects of inequality (Pridemore 2011). The effect size of students' economic capital is reduced in both models III and IV, but it remains significant. In model IV, the average level of the students' economic capital is the strongest predictor of the perceived frequency of ASB, suggesting that schools with higher average level of economic capital amongst students have more ASB as perceived by students. The school economic capital is not a strong predictor of the perceived frequency of ASB of the students, and indeed, as showed in the log likelihood test, the incorporation of this variable does not improve the model. Nonetheless, as the purpose of this section is the analysis of individual and contextual economic factors, the economic capital of the school will be included in the rest of the analysis.

The results of models V and VI confirm the importance of controlling for type of school and size of locality, as their incorporation to the model changed the results, making inequality non-significant. This suggests that some of the effects that were shown in the previous

models can be explained by differences in between the school types and localities. The effect and direction of the variables associated with economic capital remained somehow constant, where the student and school economic capital do not seem to explain very well the students' perceived level of ASB, yet, the average level of students' economic capital in schools continued to be its strongest predictor. However, the direction of the effect seems to be in opposite direction to the expected, as an increase in the average level of students' economic capital is associated with an increase in the perceived frequency of ASB of the students. This indicates that the higher the average level of the students economic capital, the greater perceived frequency of ASB, which means that students of wealthier schools report more bad behaviour than those of poorer schools (and could confirm lower levels of perceived frequency of ASB in some of the most deprived schools). This situation seems to be confirmed in Model VI, as the difference between Technical and Public schools is not statistically significant, and students of TV and Private schools have slightly lower levels of perceived ASB compared to those in Public schools when controlling for individual and school economic capital. Similarly, Model VI shows that mid-sized communities showed marginally higher levels of perceived frequency of ASB compared to the smallest places, but the differences between small communities and large cities was not significant. As expected, after the inclusion of all the different elements in the final model the ICC decreased, showing that 14.3 percent of the variation in the perceived frequency of ASB of the students can be attributed to differences between schools that were not included in this analysis.

9.2.3 Economic capital and principals' perceived ASB

The models showing the relationship between the principals' perceived frequency of ASB and economic capital and inequality are displayed in table 9.4. As mentioned in chapter 5, the analysis was carried out using OLS regression (single level) because, in contrast to the students' data, the principals' data does not follow a hierarchical structure, which means all the information is at the school levels. Similar to the analysis of the perception of the students, the first models show the effect of the measures of economic capital and inequality separately, followed by models that examine their joint effects. Model I shows the effect of economic capital of the school regressed on the principals' perceived frequency of ASB, where it is observed that this element is a weak predictor of the dependent variable, as the

variable effect size was small and the R-squared for the model remarkably low. The economic capital of the school explained only 0.02 percent of the variation of the dependent variable; and thus, it can be established that the infrastructure and equipment of schools do not seem to affect the principals' perceived frequency of ASB. In contrast, model II shows that inequality in the economic capital of the students had a strong and positive effect. This indicates that an overall increase in inequality of the students' economic capital (GE(1)) and due to the presence of very wealthy students (GE(2)) is linked to higher perceived frequency of ASB; GE(0) was not significant which means that increasing levels of very poor students does not seem to affect the perception of principals. Yet, similar to model I, these variables explained only 0.1 percent of the variation of the dependent variable, suggesting that despite the association, inequalities in the students' economic capital are not good predictors of the perceived frequency of ASB of principals.

Models III and IV show the joint effect of economic capital and inequality measures on the principals' perceived frequency of ASB. It can be noted that the effect of the school economic capital changes in strength and direction. In model III it has a non-significant positive effect but when mean of the students' economic capital is added, it becomes significant with a considerable negative effect (which suggest that a higher average level in student economic capital is associated with lower perceived frequency of ASB). Up to this point, the average of the students' economic capital seems to be the best predictor of the perceived frequency of ASB of the principals, as the inclusion of this element (Model IV) increased the explained variance; however, the effect remains low, explaining only 7.4 percent of the variation of the perceived frequency of ASB. The effect of the average level of the students' economic capital is positive, that is, increases the perceived frequency of ASB, which seems to contradict some previous research that suggested that poorer contexts had more ASB. It can be noted that after including both the measure of school economic capital and the mean of the students' economic capital, GE(0) became significant (but effect size was weak), while GE(1) and GE(2) remained significant and their effect size increased and reversed in direction. This means that an increase in the overall levels of inequality (GE(1)) and due to the presence of very wealthy students (GE(2)) seems to predict a lower perceived frequency of ASB amongst principals. Although the presence of very deprived students, in economic terms, predicted lower levels of perceived frequency of ASB amongst principals, this effect was relatively small.

Table 9.4: OLS regression of principals' perceived ASB (Economic Capital and Inequality).

Model:	I	II	III	IV	V	VI
Constant	0.332**	0.392**	0.383**	0.119**	0.187**	0.201**
S.E	(0.014)	(0.006)	(0.018)	(0.018)	(0.035)	(0.036)
School Economic Capital	0.062**		0.013	-0.231**	*-0.036*	*-0.042*
S.E	(0.021)		(0.023)	(0.028)	(0.027)	(0.027)
Ineq. Students Eco. Capital						
GE(0) *At the bottom*		0.037	0.032	-0.148**	-0.053*	-0.051*
S.E		(0.025)	(0.026)	(0.028)	(0.025)	(0.026)
GE(1) *Across the distrib*.		-1.503**	-1.410**	2.313**	1.127*	**1.097***
S.E		(0.502)	(0.529)	(0.571)	(0.521)	(0.523)
GE(2) *At the top*		0.936*	0.885*	-1.101*	*-0.559*	*-0.557*
GE(0) *At the bottom*		(0.413)	(0.423)	(0.431)	(0.389)	(0.390)
Mean Student Eco. Capital				0.544**	0.450**	**0.418****
S.E				(0.036)	(0.042)	(0.047)
Type of School *(ref. Public)*						
Public Technical					*-0.010*	*-0.010*
S.E					*(0.010)*	*(0.010)*
TV School					-0.152**	**-0.149****
S.E					(0.010)	(0.010)
Private					-0.300**	**-0.300****
S.E					(-0.013)	(-0.014)
Size of locality *(ref. 1 to 2,499)*						
2,500 to 99,999						*0.012*
S.E						(0.009)
More than 100,000						0.023*
S.E						(0.011)
R-squared	0.002**	0.012**	0.012**	0.075**	0.265**	0.268**
Adjusted R-squared	0.002**	0.011**	0.011**	0.074**	0.263**	0.266**

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05*

However, as shown in models V and VI, when controlling for the type of school and size of locality, the results of the relationship between economic capital and inequality and the principals perceived frequency of ASB changed considerably. Some of the effects described

before seem to be explained by differences in the school type, as its inclusion to the model made the school economic capital and inequality at the top of the distribution (GE(2)) statistically insignificant, and the effect of inequality at the bottom of the distribution (GE(0)) decreased substantially. This suggests that the effect that the economic capital of the school and the presence of very poor and wealthy students (GE(0) and GE(2)) had on the principals' perceived frequency of ASB can be explained by differences in school type (large part of these differences are caused by differences between types schools). In model VI, the average level of the students' economic capital and the overall levels of inequality in the students' capital (GE(1)) showed the strongest effects, in which an increase on these measures was associated with a higher perceived frequency of ASB among principals. As shown by the R-squared, the type of school seems to be the strongest prediction of the perceived frequency of ASB, where principals of TV and Private schools had a noticeable lower perception compared to Public schools. Finally, principals of schools in the largest cities had higher perceived frequency of ASB compared to those in the smallest communities, yet, the effect was very small.

The analysis presented in this section can contribute to the existing literature about the effects of economic capital and its inequality in the school context, as the findings suggest that both elements could be associated to the perceived frequency of ASB of students and principals of secondary schools in Mexico. Yet, as explored throughout the analysis, in order to untangle the effects of economic capital and its inequality it is necessary to use appropriate models that, as Pridemore (2011) indicated, establish the correct relationship and use the right variables. In this sense, it was found that the lack of variables that capture the effects of either capital or inequality could produce models where other elements pick up their effect, resulting in inaccurate and/or partial results. Therefore, it can be concluded that while individual level economic capital does not seem to be a good predictor of the perceived frequency of ASB in the school context, some characteristics of the school environment are, especially the average level of capital of the students, which was an important predictor for both students and principals. Additionally, whereas inequality in the students' economic does not seem to be associated with the perceived frequency of ASB of students, an overall increase of this element (GE(1)) predicted a considerable increase in the principals perception, suggesting that principals could be more likely to report ASB than students in schools with high levels of inequality in economic capital.

Lastly, the analysis presented in this section also confirms the use of some important elements highlighted in chapter 4, specifically the use of an ecological approach and the use of multidimensional measures of capital and inequality. As mentioned before, the results of the students and principals' models suggest that individual factors are not as important as the characteristics and elements of the world around them to predict their perceived frequency of ASB, confirming Bronfenbrenner (1979, 1994) idea that sociodemographic elements of young people and their families affect their interaction with immediate and more distance settings (i.e. schools). What is more, the fact that the type of school seems to be an important predictor of the perceived frequency of ASB among principals, suggests that other environmental elements can have a greater impact on the behaviour of individuals than their own characteristics. In relation to the use of multidimensional measures of capital and inequality, one of the main findings of this section was the importance of calculating inequality based on measures that pick up the effect at different parts of the distribution. Although the measure that captures the effect of disparities across the distribution (GE(1)) was the only important predictor of the perceived frequency of ASB in the final model of the principals, throughout the analysis the other two measures picked up some effects. This suggests that the presence of very wealthy or deprived students could also affect the levels of perceived frequency of ASB among some schools.

9.3 Social capital and perceived ASB

As described in chapter 4, the words poverty, capital, and inequality have been commonly used to describe economic processes and problems, and thus, many scholars and policy makers have established conclusions about their effects despite these being purely based on an economic perspective. In this sense, as Sen (1995) pointed out that the internal and external characteristics and necessities of human beings differ from each other, and therefore, it is impossible to assess individual processes based only on one dimension of human life. Hence, this situation has caused a misconception and misinterpretation of the real meaning of those words, as the needs of individuals as well as many social processes depend on several other factors, many of which cannot be measured in terms of the availability and distribution of economic assets. Although in recent years some efforts have been made to recognise the multidimensional nature of poverty and inequality, the debate

about how these problems might relate to problems such as crime and ASB is still heavily based on an economic approach. This does not mean that the analysis of ASB has been narrowed only to economic processes, but research based on the recognition that deprivation and inequalities may also refer to other factors is scarce. It is in this sense that this thesis will use the forms of capital of Bourdieu (1986) in order to establish a multidimensional framework for the analysis of the effects of capital and inequality. As highlighted in chapters 3 and 4, the decision of using Bourdieu's forms of capital was based on the fact that this approach can be used to address important elements that have been associated with ASB in the school context. Thus, the analysis presented in this section aims to explore the link between social capital, its respective inequality, and the levels of perceived frequency of ASB of students and principals of secondary schools in Mexico.

As discussed in chapter 4, Bourdieu (1986) defined social capital as those resources connected to social networks or membership to a group. As noted before, there is an extensive literature that links some elements of negative social connections and coexistence with ASB in the school context; however, similar to economic capital where income has been used to make generalisations about its effects, scholars have made conclusions about the effects of social capital based only on a few elements. What is more, inequality in social capital[32] is a concept that has not been explored before, so this analysis will provide a unique contribution to the existing literature about the impact of the perception of social connections on ASB. In line with the previous section, the models presented here were also carried out using measures of social capital and inequality together to examine the way in which inequality in social capital impacts on the perceived frequency of ASB over and above levels of social capital[33]. This section consist of three subsections: the first one explores the relationship between social capital and the perceived frequency of ASB using the variables used for the creation of the social capital scores, and in the following two sections the effect

[32] Inequality in social capital will be defined for the purpose of this research as differences in the perception of social connections between students of the same school. Hence, GE(0) will pick up the effects of students that have a very bad perception of social interactions, GE(1) the overall effects of differences in the perception across all students, and GE(2) the effect of students who perceive a very good social environment.

[33] One of the aims of this research is to explore how inequality affects the perception of ASB over and above deprivation; yet, the concept of poverty has been deeply rooted to economic assets. Therefore, instead of using the concept of poverty, this section will refer to low levels of social capital, which denotes a poor or bad perception about the school environment.

of the social capital and its inequality on the students and principals' perceptions are modelled respectively.

The results confirm one of the most common findings of previous studies of social capital in the school context, which have pointed out that positive social connections and a harmonious coexistence are good predictors of positive outcomes inside communities, including a reduction of ASB (Dornbusch et al. 2001; Sampson, Morenoff, and Gannon-Rowley 2002; Sampson 2006; Schwartz et al. 2009). In this sense, the analysis of the students' perception showed that their social capital and its average for each school had a strong and negative relationship with their perceived frequency of ASB for all the models. This means that students that perceive good social connections in their schools also perceived there to be less ASB, and in schools where the majority of students reported having good social connections there was also less ASB, as perceived by students. Although the perception of the principals about social coexistence (linked to the school social capital) was also statistically significant in all the models of the students' perceived frequency of ASB, its effect was very small. This indicates that the view of principals about social connections in the school context has a very small effect on how students perceive ASB. In relation to inequality in terms of social capital, none of the measures was significant after controlling for social capital, suggesting that differences in the perception of the students about social connection in their school do not affect how they perceive ASB.

The analysis of the principals' perceived frequency of ASB showed that, as expected, a higher school social capital was linked with lower perceived frequency of ASB, that is, principals with good perception about the school environment also perceive less ASB. The average level of the students' social capital was also associated with lower perceived frequency of ASB. Although the differences in the opinion of students about social connections in their school were associated with the perceived frequency of ASB of principals, after controlling for type of school and size of locality, inequality in the social capital of students does not seem to be linked to the principals' perceived frequency of ASB. Lastly, the final models of the principals' perceived frequency of ASB showed that principals of TV and Private schools had considerably lower levels of perceived frequency of ASB compared to Public schools, and those in medium and large localities perceive more ASB than principals of the smallest communities after accounting for differences in the perception about social connections.

9.3.1 Variables of social capital and the perceived ASB

Following the same approach as the one used for economic capital, the first step for the analysis of the relationship between social capital and the perceived ASB was a correlation of the variables used for the creation of the social capital scores. As shown in chapter 5, all the variables linked to this form of capital are ordered categorical because a Likert-scale was used to measure the perception of students and principals about social connection in the school context (ranging from 1=worst to 4=best). Therefore, the Pearson's correlation that measures the strength of the linear association between two variables is not appropriate for this analysis. Because one of the variables is normally distributed (perceived frequency of ASB) and the others represent an ordinal scale, the Spearman's rho (ρ) correlation was used, which is a nonparametric test that does not make any assumption about the frequency distribution. Table 9.5 shows the results of the correlation between the variables linked to the students' social capital and their score of the perceived frequency of ASB.

The first thing that can be noted is the fact that all the variables are statistically significant, that is, all of them seem to explain differences in the perceived frequency of ASB of the students, and they have a stronger association with the scores of perceived frequency of ASB than the variables linked to economic capital. The CFA presented in chapter 8 showed that for the calculation of the students' social capital scores, the variables loaded into three different latent constructs, which for the purpose of this research were called *'positive classroom capital'*, '*positive school capital*', and '*negative social capital'*. It was argued that Bourdieu (1986) concept of social capital was the best theoretical approach for this form of capital, as his instrumental treatment of the concept allowed a personal and intentional investment (Portes 2000), regardless of the outcome or expected benefit (compared to other authors who link social capital only to positive outcomes (e.g. (Coleman 1988; Putnam 1995). All the variables linked to the positive social connections were negatively correlated to the perceived frequency of ASB, which means that positive social interactions between students and staff members in schools are linked to lower levels of perceived frequency of ASB. The correlations of the negative connections confirm the findings of previous studies that indicated that poor teachers' practices and coercive environments are associated with an increase in ASB in schools (Mayer 2001; Thapa et al. 2013; Unnever, Colvin, and Cullen 2004), as all the variables linked to negative social capital had a strong positive relationship with the dependent variable.

Table 9.5: Correlation: Social Capital of student and perceived ASB.

VARIABLE NAME	Spearman rho
Teacher encourages to talk when upset	-0.062**
Teacher organises activities	-0.137**
Students work in teams	-0.138**
Teacher encourages	-0.147**
Teacher ask to listen others	-0.162**
Teacher gives confidence	-0.198**
Teacher considers opinion	-0.207**
Students give opinion on rules	-0.216**
Positive classroom Capital	***-0.298****
Changes made based on students proposals	-0.117**
Students suggest activities	-0.150**
Students review school activities	-0.169**
Students taken into account in school	-0.217**
Principal and teachers listen students' complaints	-0.226**
Principal helps to solve problems	-0.229**
Students trust teachers	-0.232**
Positive school Capital	***-0.309****
Teacher shouts	0.348**
Teacher ignores	0.253**
Teacher interrupts	0.249**
Teacher scolds	0.204**
Negative Social Capital	***0.409****
Social Capital Students	***-0.320****

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

Table 9.6 shows the results of the Spearman rho correlations between the variables used for the construction of the school social capital scores and the principals' perceived frequency of ASB. The results show that the involvement of parents to solve problems is not linked to the perceived frequency of ASB of principals, as it was not significant and also had a score close to zero. The other four elements were associated with the perception of principals, always decreasing their perceived frequency of ASB. A positive perception from principals about the behaviour of the students seems to be the most important factor that explains differences in their perceived frequency of ASB. The other two activities, that is, the

principals' involvement in students' activities and their involvement to solve problems had also an important negative effect, that is, principals who are involved in the students' education perceived less ASB. These results confirm once again some previous studies that highlight the importance of social connections in the school environment not only between students but also with teachers (Eccles and Roeser 2011; Meehan, Hughes, and Cavell 2003; Schwartz et al. 2009). Finally, it is important to note that the social capital scores of the school had the strongest correlation of all the latent variables linked to the forms of capital with a Spearman rho of -0.451, suggesting that the perception of principals about social connections in the school context could be a very good predictor of their perceived frequency of ASB.

Table 9.6: Correlation between Social Capital of schools and principal's perceived ASB.

VARIABLE NAME	Spearman rho
Principal involves parents to solve problems	*0.007*
Principal helps to solve problems	-0.162**
Principal involves students in school activities	-0.180**
Students meet school rules	-0.345**
Students solve conflicts peacefully	-0.453**
Social Capital School	***-0.451****

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

9.3.2 Social capital and students' perceived ASB

Table 9.7 displays the results of the models that explore the relationship between social capital and the students' perceived frequency of ASB. As mentioned in the previous section, the analysis will highlight only the most important and relevant factors about the effects of social capital on the perceived frequency of ASB (and thus, not all details will not be discussed here). Overall, there are two relevant findings to point out from these models: the first one is the fact that social capital always has a negative and strong relationship with the students' perceived frequency of ASB. The second finding is the fact that although some inequality measures by themselves seem to affect the perceived frequency of ASB, when controlling for social capital, the relationship is not significant.

Overall, in Model 0 it can be observed the effect if the schools on the perceived frequency of ASB of the students (as shown by the ICC), where as noted in the analysis of economic capital, 22.4 of the variation in this perception is explained by differences between schools. Model I shows the individual effect of the students' social capital on their perceived frequency of ASB, where it is noted that the effect is quite substantial. The results suggest that those students who perceive very good social connections and a positive coexistence in schools, also perceive lower levels of ASB. The log likelihood shows that this model is an important improvement from the Model 0, where as expected, after controlling for social capital of the students the ICC decreased, and 18.8 percent in the variation of the perceived frequency of ASB of students is explained by differences between schools. Model II shows that the effect of inequality at the top (GE(2)) and across the distribution (GE(1)) is very large when nothing else is controlled in the model. In this sense, an overall increase in the differences of how students perceive their social connections (GE(1)) is associated with a substantial decrease in their perceived frequency of ASB, whereas increasing levels of students who perceive very good social connections predicted higher perceived frequency of ASB. However, the log likelihood and ICC indicate that this model is not an improvement from the previous one, showing that the students' social capital could be better to explain their perceived frequency of ASB than inequalities in their social capital. Yet, due to the aim of this research, the measures of inequality in social capital of the students will remain in the following models.

After controlling for the students' social capital (Model III), the effect of the inequality measures decreased, and when both the average level of students' social capital and the school social capital are included in the model (Model IV), the effect becomes non-significant. These social capital variables have a significant and negative effect; that is, they are associated with lower perceived frequency of ASB. However, while the average level of the students' social capital has a very important effect, the effect of school social capital is small. These findings suggest that, on the one hand, a positive view of principals about social connections has a little effect in reducing the students' perceived frequency of ASB, but on the other, a positive overall perception of students about social connections can considerably reduce how they perceive this problem. Lastly, models V and VI control for type of school and size of locality, respectively. It can be stated that, although TV and Private schools seem to have lower levels of perceived frequency of ASB than Public schools, and

students from medium and large communities perceive more ASB compared to small localities, these effects are marginal, and thus, it can be concluded that they are not good predictors of the perceived frequency of ASB. In fact, after controlling for these variables, the effect students' social capital did not change at all, the school capital had a small decrease, and although the average level of the students' capital decrease substantially, its effect remained high.

Table 9.7: Multilevel Model of students' perceived ASB (Social Capital and Inequality).

Model:	0	I	II	III	IV	V	VI
Constant	0.379**	0.625**	0.268**	0.547**	1.027**	0.930**	**0.911****
S.E	(0.001)	(0.002)	(0.005)	(0.005)	(0.020)	(0.020)	(0.020)
STUDENT LEVEL							
Student Social Capital		-0.412**		-0.408**	-0.399**	-0.399**	**-0.399****
S.E		(0.003)		*(0.003)*	*(0.003)*	*(0.003)*	*(0.003)*
SCHOOL LEVEL							
Ineq. Stud. Soc. Capital							
GE(0) *At the bottom*			*0.076*	*0.021*	*-0.059*	*-0.073*	*-0.079*
S.E			*(0.070)*	*(0.063)*	*(0.061)*	*(0.056)*	*(0.058)*
GE(1) *Across the distrib.*			-7.567**	-5.032**	*-1.364*	*-0.357*	*-0.092*
S.E			(1.502)	(1.365)	(1.305)	(1.233)	(1.227)
GE(2) *At the top*			12.260**	8.258**	2.153	*0.959*	*0.626*
GE(0) *At the bottom*			(1.540)	(1.400)	(1.357)	(1.282)	(1.277)
Mean Stud. Soc. Capital					-0.613**	-0.401**	**-0.392****
S.E					(0.028)	(0.029)	(0.029)
School Social Capital					-0.084**	-0.068**	-0.065**
S.E.					(0.010)	(0.009)	(0.009)
Type of School *(ref. Public School)*							
Public Technical						*0.001*	*0.001*
S.E						(0.004)	(0.004)
TV School						-0.072**	-0.064**
S.E						(0.003)	(0.004)
Private						-0.036**	-0.034**
S.E						(0.004)	(0.004)

Size of locality *(ref. 1 to 2,499)*							
2,500 to 99,999							0.026**
S.E							(0.004)
More than 100,000							0.009**
S.E							(0.004)
Between sch. variance	0.010**	0.008**	0.009**	0.007**	0.005**	0.005**	0.005**
	(0.000)	(0.000)	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Within school variance	0.037**	0.034**	0.037**	0.034**	0.034**	0.034**	0.034**
	(0.000)	(0.000)	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ICC	0.224	0.188	0.197	0.175	0.145	0.127	0.129
	(0.005)	(0.004)	(0.004)	*(0.004)*	*(0.004)*	*(0.003)*	*(0.003)*
Log likelihood	25899.6	31435.3	26161.9	31585.03	30971.98	31192.7	31194.51
-2*log-likelihood	-51799	-62871	-52324	-63170.1	-61943.9	-62385	-62389

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 144,057. ** p<0.01, * p<0.05*

Similar to the effect of economic capital, after controlling for the all variables, differences within schools explained most of the variation of the students' perceived frequency of ASB, as indicated by the ICC (where 12.9 percent of the variation in the perceived frequency of ASB was explained by differences between schools). It is important to note that the log likelihood shows that the students' social capital and its average level per school had the strongest effects on the perceived frequency of ASB. From an ecological perspective, this indicates that both individual and school level views about social connections could be associated with the perception of ASB, and therefore, it can be concluded that improving social connections and fostering a positive social coexistence seems to be necessary in order to reduce this problem. What is more, the analysis presented here confirms once again the use of a theoretical and methodological approach beyond traditional economic perspectives, specifically Bourdieu's (1986) view and division of capital, as social capital seems to be a stronger predictor of the students' perceived frequency of ASB than economic capital.

9.3.3 Social capital and principals' perceived ASB

Table 9.8 shows the models that examine the link between social capital and principals' perceived frequency of ASB. Similar to the analysis of the students, Model I shows that school social capital seems to have a large and negative effect, explaining around 22 percent of the variance of the principals' perceived frequency of ASB. This suggests that principals' view about social connections is connected to the way they perceive the frequency of ASB, where a better perception about social connections is associated with lower levels of perceived frequency of ASB. The model with only the inequality measures (Model II) showed that an increase in the overall levels of inequality in the social capital of the students GE(1) decreased the perceived frequency of ASB of principals, and an increase of inequality due to students with very good perception about social connections GE(2) increased it. However, these models explain only 0.3 percent of the variation of the principals' perceived frequency of ASB. These effects remained even after the addition of the school social capital (Model III) and the average level of the students social capital (Model IV), nonetheless, the inequality measures became non-significant after controlling for type of school (Model V) and size of locality (Model VI). These findings could suggest that some particular elements of these contexts could capture the effect of disparities in the social capital of the students; yet, a more in-depth evaluation is needed to confirm this hypothesis (this will be further analysed in chapter 10). It can be concluded the differences in the perception of students about the social connections are not linked to the perceived frequency of ASB of the principals.

However, similar to the school social capital (linked to the principals' perception about social connections), the average level of students' social capital had an important negative effect, in which a better perception about the social environment is associated with lower levels of perceived frequency of ASB of principals. Although in the final model (when controlling for type of school and size of locality) it can be noted that the strength of the social capital measures decreased considerably (especially the average level of the students' capital), Model IV was a good predictor of the perceived frequency of ASB of the principals, explaining around 43.3 percent of the variance. In fact, this model explained more variance in the perceived frequency of ASB than economic capital, which confirms that similar to the students' analysis, social capital is a better at predicting the perceived frequency of ASB of principals than economic capital. In line with previous findings, principals of TV and Private schools had lower perceived frequency of ASB compared to Public schools, and principals in

mid-size and large communities had higher perceived frequency of ASB, even when controlling for social capital and its inequality.

Table 9.8: OLS regression of principals' perceived ASB (Social Capital and Inequality).

Model:	I	II	III	IV	V	VI
Constant	0.869**	0.271**	0.770**	1.151**	1.014**	0.876**
S.E	(0.016)	(0.010)	(0.018)	(0.042)	(0.039)	(0.040)
School Social Capital	-0.698**		-0.695**	-0.670**	-0.605**	**-0.587****
S.E	(0.023)		(0.022)	(0.022)	(0.020)	(0.020)
Ineq. Stud. Social Capital						
GE(0) *At the bottom*		*0.115*	*0.056*	*0.033*	*0.069*	*-0.080*
S.E		*(0.145)*	*(0.128)*	(0.126)	(0.114)	(0.111)
GE(1) *Across the distrib.*		-11.343**	-9.629*	-5.841*	*-1.550*	*-0.646*
S.E		(3.180)	(2.801)	(2.786)	(2.525)	(2.465)
GE(2) *At the top*		15.703**	13.823**	7.992**	*3.009*	*1.614*
GE(0) *At the bottom*		(3.271)	(2.881)	(2.899)	(2.628)	(2.567)
Mean Student Social Capital				-0.586**	-0.224**	**-0.139****
S.E				(0.059)	(0.057)	(0.056)
Type of School *(ref. Public School)*						
Public Technical					*-0.013*	*-0.002*
S.E					*(0.009)*	*(0.009)*
TV School					-0.183**	**-0.114****
S.E					(0.008)	(0.009)
Private					-0.184**	**-0.206****
S.E					(0.010)	(0.010)
Size of locality *(ref. 1 to 2,499)*						
2,500 to 99,999						**0.101****
S.E						(0.009)
More than 100,000						**0.118****
S.E						(0.009)
R-squared	0.220**	0.031**	0.249**	0.271**	0.406**	0.435**
Adjusted R-squared	0.220**	0.030**	0.248**	0.270**	0.405**	0.433**

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05*

This section showed that the use of a multidimensional approach in the exploration of the effects of capital and inequality is necessary in order to explain some social processes and problems, including ASB in schools. In this sense, the forms of capital of Bourdieu (1986) seems to be the best approach to evaluate the link between capital, inequality, and the perceived frequency of ASB, as the measures based on his conceptualisation of social capital had an important link with the perceived frequency of ASB of both students and principals. What is more, the results of this section showed that the perception about the social connections in schools could be more important than economic capital at predicting the perceived frequency of ASB, as these models explained more variance than in the ones presented in section 9.2. Similarly, the analysis presented in this section confirmed once again that both, individual and school level factors could shape the behaviour of individuals, and hence, supporting the use of an ecological approach to explain problems, including the perception of ASB.

Although the measures of inequality in the students' social capital could not explain differences in the perceived frequency of ASB, two important elements examined in this section suggest that some dissimilarities between schools can be important to explain differences in the perceived frequency of ASB. The first one is the average level of the students' capital, where better perceptions about social connections from students seems to decrease the perceived frequency of ASB of both students and principals. The second element is linked to the effect that the type of school and size of locality had not only to explain differences in the perceived frequency of ASB, but also at picking up some of the effects of social capital and its inequality, suggesting important differences between them that could explain this problems. Although social capital seems to be an important factor that could help to decrease the perception of ASB in schools, other important elements should be evaluated before making any conclusion about the effects of this form of capital, including the differences between school type and locality size, and the effect of the last of the forms of capital introduced by Bourdieu: cultural capital.

9.4 Cultural capital and perceived ASB

As defined in chapter 4, cultural capital refers to all those dispositions, knowledge, and values acquired or inherited from different social groups (Bartee and Brown 2007), which according to Bourdieu (1986) exist in an embodied state (long-lasting dispositions of body and mind), objectified state (cultural goods), and institutionalised state (educational qualifications). Cultural capital has acquired such importance that in recent years some of its elements have been incorporated to important measures such as the Human Development Index (United Nations 1990, 2016) and the Better Life Index (OECD 2017) in order to measure the quality of life and living standards across nations. Yet, cultural capital remains one of the least explored factors in criminological research. Therefore, more evidence is necessary to expand our knowledge about the relationship between cultural capital (both at the individual and school level) and ASB in the school context. Hence, this section aims to explore this relationship, not only because of the immense gap in the literature, but also because as shown in chapter 2, the stratification and segmentation of social groups in Mexico have caused a false impression that ASB is linked to those groups with the lowest levels of education and access to culture.

Following the approach of the previous sections, the analysis of the perceived frequency of ASB will examine first its link with variables used for the creation the cultural capital scores, to then establish different models for the perceptions of the students and principals. The main finding of this section is that inequality in cultural capital seems to be a better predictor of the students' perceived frequency of ASB than cultural capital, even after controlling for type of school and size of locality. In this sense, an increase in the overall levels of inequality in cultural capital (GE(1)) was associated with a higher perceived frequency of ASB of the students, and an increase in the presence of students with very low (GE(0)) or very high levels of cultural capital (GE(2)) predicted lower perceptions. Thus, these findings suggest that although the term inequality generally has a negative connotation, in some situations the differences that exists between students can have a positive effect on others, yet, more research is needed in order to untangle this effect. Similar to economic and social capital, the average level of students' cultural capital was also an important predictor of the students' perceived frequency of ASB. In relation to the principals, inequality does not seem to explain differences in their perceived frequency of ASB. The school cultural capital had a small effect, and the average level of the students' cultural capital was the strongest predictor of the

principals' perceived frequency of ASB. Finally, it is important to note that, contrary to what it was expected, the results for both the students and principals indicate that higher levels cultural capital are associated with a higher perception ASB, and thus, more research is also needed to understand why this situation happens.

9.4.1 Variables of cultural capital and the perceived ASB

Tables 9.9 and 9.10 display the correlation of the variables linked to the cultural capital and the perceived frequency of ASB of the students and principals, respectively. Similar to the analysis of social capital, as the variables are binary and ordered categorical, only the Spearman rho correlations are displayed in the table (this non-parametric test does not require any assumptions about the distribution of the data)[34]. As observed in table 9.9, despite all the variables being statistically significant, the relationship between the variables linked to the students' cultural capital and the scores of their perceived frequency of ASB is small. The variables associated to the level of education of the parents and their expectations had the highest positive score, that is, they seem to predict a higher perceived frequency of ASB among students. The same situation happens to the cultural assets at home and with the students' cultural capital score; yet, more analysis is needed to untangle the direction and strength of these relationship (this is further analysed in chapter 10). One possible answer is that, as shown in the analysis of economic capital, this effect could be linked to other contextual factors such as the type of school and size of locality (larger cities have more highly educated people but also higher levels of ASB). As expected, the correlation between the variables associated with family support in the education of students had a negative score, which suggests that these elements could reduce the perceived frequency of ASB in schools.

[34] Pearson's r correlations were also computed to compare the results of the dichotomous variables, as this test is more appropriate than Spearman rho for that type of data. Yet, as expected the results of both correlations were very similar, and despite Spearman's rho being less efficient than Pearson's r on normal data (Salkind 2007), the differences were small and for the purpose of this research, they do not represent an important challenge to compare how the different variables of cultural capital affect the perception of ASB.

Table 9.9: Correlation: Cultural Capital of student and perceived ASB.

VARIABLE NAME	Spearman rho
Mother's level of education	0.099**
Father's level of education	0.093**
Parents' expectations of education	0.083**
Number of books at home	0.052**
Language classes	0.041**
Computer classes	0.025**
People at home helps studying	-0.092**
People at home aware of studies	-0.125**
Cultural Capital Students	***0.104****

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

Table 9.10: Correlation between Cultural Capital of schools and principal's perceived ASB.

VARIABLE NAME	Spearman rho
Parents gave some notice to the principal	0.149**
Parents gave suggestions to support their children	0.144**
Parents asked about the progress of their children	0.100**
Full teacher in front of all groups	*0.023*
Books for students use	-0.063**
Computers for students use	-0.126**
TVs for teaching	-0.259**
Cultural Capital School	***0.172****

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

The results of table 9.10 suggest that cultural capital in schools is linked to higher perceived frequency of ASB among principals, with the capital scores having the strongest correlation with this perception; however, it is also necessary to explore other factors to confirm and understand why it increases the levels of perceived frequency of ASB. The presence of a *full teacher in front of all groups* was statistically significant, that is, it did seem to influence the perceived frequency of ASB of principals. Contrary to the results of the students' perception, the intervention of parents in their children's education increased the perceived frequency of ASB. Nonetheless, these activities could indicate in some cases intervention due to behavioural problems of their children or other factors which could be directly linked to higher levels of ASB; yet, more information is necessary to confirm this assumption.

However, as stated in chapters 5 and 8, for the purpose of this study parental involvement in the school context denotes an element of cultural capital, as it indicates the interest of parents in their children's education. Finally, it can be noted that the availability of cultural material in the school context seems to decrease the perceived frequency of ASB of the principals, that is, in those schools with access to cultural materials, principals perceived there to be less frequency of ASB.

9.4.2 Cultural capital and students' perceived ASB

Table 9.11 shows the results of the multilevel analysis of the relationship between cultural capital and the students' perceived frequency of ASB. The main finding of these models is the fact that inequality in cultural capital seems to be an important predictor of the perceived frequency of ASB, even when controlling for the other cultural capital variables and for type of school and size of locality. In model I it can be observed that despite the apparent improvement of the model in relation to model 0 (as shown by the decrease of the -2*log likelihood and the ICC), the effect of the students' cultural capital on the perceived frequency of ASB does not seems to be relevant. In this sense, the results shows that higher levels of *'culture'* among students are associated with a very small increase of the perceived frequency of ASB. In fact, as shown in the results of the rest of the models, this effect remains low even after the inclusion of other variables. In turn, model II shows that the effect of the inequality in cultural capital, specifically of the measures GE(1) and GE(2) is quite substantial, despite the fit statistics showing that it was not an improvement from model I (yet they were kept in further models to fit the purpose of this research).

In this sense, an overall increase of disparities in cultural capital among students (GE(1)) was linked with higher perceived frequency of ASB, whereas having students with very high levels of this form of capital (GE(2)) predicted a decrease in this perception. The effect of these inequality measures remained even after the inclusion of the students' cultural capital, as displayed in model III. What is more, although in models II and III the presence of students with very low levels of cultural capital (GE(0)) did not seem to be associated with the perceived frequency of ASB, when the mean of the students' cultural capital and the school cultural capital are incorporated (model IV), this measure becomes significant. The results suggest that an increase in the presence of students with very low levels of cultural capital

is associated with less frequent ASB as perceived by students. The negative association between the inequality measures GE(0) and GE(2) with the students' perceived frequency of ASB seems to be one of the main findings of this research, as it might indicate that despite the traditional negative connotation of the word inequality, the differences between students do not always have an adverse effect.

While more research is necessary to understand this association, a possible explanation for the decreasing levels of perceived frequency of ASB due to an increasing inequality could be the presence of a threshold effect, where the direction of the effect changes after surpassing certain levels of inequality at the bottom or top of the distribution. This could be supported by the fact that an increase in the overall levels of inequality (GE(1)) has the expected detrimental effect, that is, increases the perceived frequency of ASB. Yet, this effect could only remain until certain thresholds are reached, and after this level, an increase in the presence of either very deprived or wealthy students, in terms of cultural capital, could no longer be detrimental. If this hypothesis is true, students with more cultural capital could have a positive *peer effect* on those with lower levels, that is, they could compensate some of the deprivations in cultural capital of other students, as Bourdieu (1986) pointed out that this form of capital is acquired and transmitted through different social groups, including other students in the school.

Although school cultural capital is statistically significant, even after controlling for type of school and size of locality, it does not seem to be a strong predictor of the perceived frequency of ASB. However, in line with the findings of the analysis of economic and social capital, the average level of the students' cultural capital seems to predict better the students' perceived frequency of ASB than the other capital measures. However, similar to the analysis of economic capital, the effect of this element is in the opposite direction to the one expected, as an increase in the average level of the students' cultural capital is associated with higher levels of perceived frequency of ASB. Therefore, a more in-depth analysis is necessary in order to understand this effect (chapter 10 provides an analysis which addresses this issue). Lastly, in models V and VI show that although the school type and locality size seems to explain some of the differences in the perceived frequency of ASB of the students after controlling for cultural capital and its inequality, the improvement in relation to previous models is marginal (as showed by the log likelihood). In the final model

of this analysis (model VI), students of TV and Private schools, and those from medium and large communities, seems to have slightly higher levels of perceived frequency of ASB compared to public schools and small localities, respectively. Similar to the models presented in sections 9.2.2 and 9.3.2 (i.e. economic and social capital), when controlling for all the variables in the model the ICC decreased in relation to model 0, showing that 15 percent of the variation in the students' perceived frequency of ASB can be explained by other differences between schools not considered in this model.

Table 9.11: Multilevel Model of students' perceived ASB (Cultural Capital and Inequality).

Model:	0	I	II	III	IV	V	VI
Constant	0.379**	0.341**	0.398**	0.354**	0.149**	0.239**	**0.245****
S.E	(0.001)	(0.002)	(0.003)	(0.004)	(0.012)	(0.017)	(0.017)
STUDENT LEVEL							
Student Cultural Capital		0.071**		0.068**	0.049**	0.049**	0.049**
S.E		(0.004)		*(0.004)*	*(0.004)*	*(0.004)*	*(0.004)*
SCHOOL LEVEL							
Ineq. Stud. Cul. Capital							
GE(0) *At the bottom*			*-0.629*	*-0.754*	-1.472**	-1.191**	**-1.161****
S.E			*(0.414)*	*(0.405)*	*(0.386)*	*(0.347)*	*(0.344)*
GE(1) *Across the distrib.*			4.525**	4.803**	6.163**	6.105**	**5.890****
S.E			(1.403)	(1.372)	(1.331)	(1.201)	(1.193)
GE(2) *At the top*			-4.602**	-4.503**	-4.457**	-4.276**	**-4.149****
GE(0) *At the bottom*			(1.042)	(1.019)	(0.996)	(0.901)	(0.895)
Mean Stud. Cult. Capital					0.281**	0.243**	**0.200****
S.E					(0.019)	(0.027)	(0.029)
School Cultural Capital					0.071**	0.033**	0.028**
S.E.					(0.009)	(0.008)	(0.008)
Type of School *(ref. Public School)*							
Public Technical						*0.004*	*-0.005*
S.E						*(0.004)*	*(0.004)*
TV School						-0.087**	-0.075**
S.E						(0.005)	(0.005)
Private						-0.086**	-0.080**
S.E						(0.006)	(0.006)

Size of locality *(ref. 1 to 2,499)*							
2,500 to 99,999							0.036**
S.E							(0.005)
More than 100,000							0.022**
S.E							(0.005)
Between sch. variance	0.010**	0.010**	0.010**	0.010**	0.008**	0.006**	0.006**
	(0.000)	(0.000)	(0.000)	*(0.000)*	*(0.000)*	(0.000)	(0.000)
Within school variance	0.037**	0.037**	0.037**	0.037**	0.037**	0.037**	0.037**
	(0.000)	(0.000)	(0.000)	*(0.000)*	*(0.000)*	(0.000)	(0.000)
ICC	0.224	0.214	0.220	0.211	0.188	0.153	0.150
	(0.005)	(0.004)	(0.005)	*(0.004)*	*(0.004)*	(0.004)	(0.004)
Log likelihood	25899.6	26047.2	25931.2	26066.68	25549.469	25873.1	25882.84
-2*log-likelihood	-51799	-52094	-51862	-52133.4	-51098.94	-51746	-51765.7

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 144,057. ** p<0.01, * p<0.05.*

9.4.3 Cultural capital and principals' perceived ASB

Table 9.12 shows the results of the OLS regression that focused on the relationship between cultural capital and the perceived frequency of ASB of the principals. Model I shows the effect that the school cultural capital has on the dependent variable, in which is noted that this form of capital has a small to medium effect, increasing the perceived frequency of ASB. Yet, the R-squared shows that the model predicts only 2.4 of the variation in the perceived frequency of ASB of the principals, and as shown in the rest of the models where this variable is included, the effect decreases considerably after controlling for other elements. The most important finding from this analysis is that, contrary to the results of the students' perception, inequality in cultural capital was not an important predictor of the perceived frequency of ASB of the principals, and in fact, none of the inequality measures were significant in any model. Indeed, as noted in model II, even when analysed individually, these measures did not explain any variation in the perceived frequency of ASB, as the R-squared was 0.

Table 9.12: OLS regression of principals' perceived ASB (Cultural Capital and Inequality).

Model:	I	II	III	IV	V	VI
Constant	0.305**	0.372**	0.293**	0.172**	0.244**	0.292**
S.E	(0.008)	(0.007)	(0.011)	(0.024)	(0.036)	(0.036)
School Cultural Capital	0.163**		0.168**	0.126**	0.046**	0.023**
S.E	(0.018)		(0.018)	(0.020)	(0.018)	(0.017)
School Cultural Inequality						
GE(0) *At the bottom*		*-1.106*	*-1.303*	-1.663*	*-1.009*	*-0.825*
S.E		*(0.858)*	*(0.848)*	(0.847)	(0.749)	(0.731)
GE(1) *Across the distrib.*		*3.909*	*3.784*	*4.726*	*3.566*	*2.223*
S.E		*(2.892)*	*(2.856)*	(2.849)	(2.522)	(2.464)
GE(2) *At the top*		*-2.755*	*-2.047*	*-1.920*	*-1.731*	*-0.746*
GE(0) *At the bottom*		*(2.142)*	*(2.117)*	(2.108)	(1.865)	(1.822)
Mean Student Cult. Capital				0.218**	0.387**	**0.146****
S.E				(0.040)	(0.057)	(0.059)
Type of School *(ref. Public School)*						
Public Technical					*-0.013*	*-0.003*
S.E					*(0.011)*	*(0.010)*
TV School					-0.175**	**-0.117****
S.E					(0.011)	(0.011)
Private					-0.294**	**-0.274****
S.E					(0.014)	(0.014)
Size of locality *(ref. 1 to 2,499)*						
2,500 to 99,999						**0.117****
S.E						(0.010)
More than 100,000						**0.139****
S.E						(0.009)
R-squared	0.024**	0.000	0.025**	0.034**	0.246**	0.282**
Adjusted R-squared	0.024**	0.000	0.024**	0.033**	0.244**	0.280**

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

The results of model IV show that as expected, the average level of the students' cultural capital was one of the strongest predictors of the principals' perceived frequency of ASB, where higher levels of this element were associated with a higher perception. However, the

model that included the school cultural capital and the average level of the students' cultural capital explained only 3.3 percent of the variation of the perceived frequency of ASB. Therefore, it can be concluded that although cultural capital is linked to changes in the perceived frequency of ASB of principals, this form of capital is not a good predictor of this perception. Confirming previous findings, model V shows that school type seems to have a strong association with the perceived frequency of ASB of principals, as the inclusion of this element in the model explained a large part of the variation. As shown in models V and VI, principals of TV and Private schools had considerably lower perceived frequency of ASB compared to Public schools, and principals in middle and large communities perceived there to be more ASB than those in small localities.

This section provided sufficient evidence to confirm again the use of a multidimensional approach based on the forms of capital of Bourdieu (1986) for the analysis of the effects of capital and inequality, as the results presented here showed that some measures linked to cultural capital were associated with the perceived frequency of ASB in schools. What is more, if was found that inequality in the students' cultural capital had a strong impact on the way students perceived ASB in their schools, even after controlling for differences in school type, locality size, and for other elements associated with cultural capital. As anticipated, an increase in the overall levels of inequality in the students' cultural capital (GE(1)) seems to increase the perceived frequency of ASB of the students. Yet, contrary to what it was expected, an increase in the presence of students with very low (GE(0)) or very high (GE(2)) levels of cultural capital was linked to a decrease in their perceived frequency of ASB. It was suggested that a threshold effect could explain the effects of the disparities at the lower and top end of the distributions (GE(0) and GE(2)). In this sense, an increase in the overall levels of inequality in the cultural capital can have a detrimental effect of the behaviour of students (i.e. GE(1) increases the perceived frequency of ASB), but as the presence of very deprived (GE(0)) or wealthy students increases (GE(2)), this effect changes in strength and direction. This could mean that in schools with high levels of inequality due to students with very low or very high cultural capital, those students with higher levels of this form of capital could complement the deficiency of those with lower levels.

The average level of the students' cultural capital was the only element associated to this form of capital that seems to explain differences in the perceived frequency of ASB of the

principals, yet, as noted in the results of table 9.12, this element explains only a small part of the variation. However, the results from this analysis confirmed once again the idea that the behaviour of individuals is not only shaped by their own characteristics, but also by the world around them (Bronfenbrenner 1979), as differences in school type and locality size explained an important part of the variation of the principals perceived frequency of ASB. Therefore, these findings show that in order to untangle the link between the forms of capital, their associated inequalities, and the perceived frequency of ASB in schools, it might be necessary to explore different environments, that is, how capital and inequality affect the perceived frequency of ASB of students and principals in different types of schools and localities.

9.5 Conclusions

The three main sections of the chapter presented different models that examined the perceived frequency of ASB of both students and principals using the measures of capital and inequality developed in chapter 8. It did this by analysing first their individual effect on the perceived frequency of ASB (i.e. the effect of each form of capital and their associated inequality separately) and then exploring their joint effect. As discusses in chapters 4, 5, and 6, the students' perceived frequency of ASB was analysed using multilevel modelling for two reasons: 1) the data followed a hierarchical structure that contained variables at the individual and school level, and 2) this study is based on the idea that both individual and environmental factors affect the behaviour of students (and could affect their perception of ASB). The analysis of the principals was based on a single level OLS regressions, as all the variables used in these models were at the school level (and there is only one principal per school). This analysis is of special importance in the debate about the effects of capital and inequality in the school context because it was discovered that some measures linked to both elements are associated to the perceived frequency of ASB in schools. However, a more exhaustive investigation is necessary before drawing any general conclusion about this complex relationship, especially to explore differences between school type and locality size, as the findings suggested that capital and inequality might have a different effect on the perceived frequency of ASB of students and principals of different backgrounds.

Nonetheless, at this point it can be established that these results have shown the importance of three important theoretical elements: 1) the use of the ideas of Bronfenbrenner (1979) and Bourdieu (1986), 2) the importance of using multidimensional measures of capital and inequality, and 3) the need to control for both capital and inequality together. In relation to the first theoretical element, this chapter has confirmed the use of an ecological approach based on the idea that the behaviour of individuals is shaped by their own characteristics and those of the social world around them (Bronfenbrenner 1979), as elements linked to both students and schools were linked to the perceived frequency of ASB. As noted in chapter 3, most studies about causal effects of capital and inequality have been developed in very specific contexts where the social and economic conditions do not correspond to the reality of other places; hence, shaping our understandings about many social problems, including ASB. Yet, the findings of this chapter have shown that, as suggested by Bronfenbrenner (1994), the effects of capital and inequality seem to change not only according to the own characteristics of the individual, but also those of their environment..

Similarly, the use of the forms of capital introduced by Bourdieu (1986) proved to be the best approach for the construction of multidimensional measures of capital, as some elements associated with social and cultural capital explained better than economic capital differences in the perceived perception of ASB of both students and principals. This does not mean that economic capital measures should be excluded in future criminological studies, but the analysis should not exclude other variables such as those linked to social connections and culture. In this sense, the results suggested that only the average level of the students' economic capital was linked to the students' perceived frequency of ASB. In the case of the principals, an increase in the overall levels of inequality seemed to have the strongest effect on their perceived frequency of ASB, followed by the average level of the students' economic capital. However, in both cases, an increase in the average level of the students' economic capital was associated with higher perceived frequency of ASB, contradicting some previous studies that suggest that poverty and deprivation are strong predictors of ASB (e.g. Sampson, Morenoff, and Gannon-Rowley 2002). Therefore, a more in-depth analysis is necessary in order to identify the reasons behind these effects.

Social capital was one of the strongest predictors of the perceived frequency of ASB amongst students and principals; as the variables linked to this form of capital showed a strong and

consistent effect throughout the different models (even after controlling for other factors). In all cases, social capital had a negative relationship with the perceived frequency of ASB, suggesting that better perceptions about social connections and a positive coexistence in the school context always seems to reduce the perceived frequency of ASB. None of its inequality measures was associated to changes in the perceived frequency of ASB; nevertheless, the average level of the students' social capital had a strong effect (also decreasing the perception). In relation to cultural capital, the main finding was the fact inequality in the students' cultural capital had a strong effect on the students' perceived frequency of ASB. The measure associated with inequality across the whole distribution (GE(1) increased the perceived frequency of ASB, yet, the other two measures, that is, those that focus on disparities at the top and bottom ends of the distribution decreased their perception. Although more studies are needed in order to understand these effects, this could mean that in spite of the fact that the word inequality has traditionally been associated with negative outcomes; in some cases, differences between students could have the opposite effect. The average level of the students' cultural capital had also an important effect on the perceived frequency of ASB; yet, similar to the economic capital the results were somehow unexpected as it increased the perceived frequency of ASB.

Finally, this chapter showed the importance of using appropriate measures of capital and inequality together when analysing social processes, as models that do not establish the correct relationship or use the right variables could yield partial and/or erroneous results (Pridemore 2011). For instance, in most of the models that did not control for capital, the inequality measures had a significant and strong effect; yet, after including capital variables, this effect decreased, and in most cases became non-significant. Although most inequality measures were not linked to the perceived frequency of ASB, this does not mean that inequality does not have an effect on how students and principals perceive their school contexts, as the average level of the students' capital (which shows differences between schools) was one of the best predictors of the perceived frequency of ASB in all the models..

Although many findings of this chapter are in line with previous studies about ASB in schools (i.e. social capital), many others contradict some previous research (e.g. suggesting that either poverty or inequality are associated with these problems) or have not been explored in the past (i.e. effects of inequality in cultural capital). Thus, it is necessary to explore more

in detail the joint effect of these elements on students and principals, as no individual or school is influenced by just one form of capital. Therefore, the next chapter aims to analyse how all the variables linked to economic, social, and cultural capital, and their associated inequalities affect together the perceived frequency of ASB students and principals. Additionally, as the results presented here suggested important differences between some school types and localities of different size, the next chapter will also include a multiple group analysis that will aim to explore how capital and inequality affect each one of these contexts.

Chapter 10: The forms of capital and the perception of antisocial behaviour in schools.

10.1 Introduction

The analysis presented in chapter 9 showed the importance of using a multidimensional approach for the analysis of the effects of capital and inequality, that is, the need of moving away from studies that focus only on economic assets as the quality of life and needs of people depend on many other factors. In this sense, the use of measures based on the forms of capital of Bourdieu (1986) proved to be adequate to examined the perceived frequency of ASB in the school context, as some measures linked to social and cultural capital were better than economic capital to predict changes in the perceived frequency of ASB. Additionally, the results of the models confirmed Bronfenbrenner's (1979, 1994) idea that the characteristics of young people and those of their immediate environment (i.e. schools) affect and shape their behaviour, as different elements at the individual and school level were associated to the perceived frequency of ASB. What is more, the results suggested that some contextual factors such as type of school and size of locality are necessary in order to untangle the complex relationship between capital, inequality and the perception of ASB in schools, as their inclusion changed the strength and effect of some of the capital measures. However, in order to avoid false generalisations or partial conclusions about the effects of the different forms of capital and their inequalities, it is necessary to examine models that consider these elements together, because in real life all students and principals are endowed with a certain level of all the forms of capital. Similarly, students and principals attend only one type of school and live in a locality of a determined size. Hence, this chapter explores the effects of the forms of capital and their inequality on the perceived frequency of ASB by presenting models for the students and principals that take into consideration measures of all the forms of capital and their inequality. In addition, this chapter analyses the effects of the forms of capital and inequality across different types of schools and localities of different size, in order to explore how these elements affect the perceived frequency of ASB in different contexts.

This chapter is divided into two main sections. The first section presents an analysis of the joint effect of the forms of capital on the perceived frequency of ASB using the same

statistical methods as those from chapter 8. The following section explores the effect of capital and inequality on the perceived frequency of ASB for each type of school and localities of different size using Multiple Groups Analysis (Muthen and Muthen 2011), a statistical technique that allows the exploration of the effects of the forms of capital and inequality across different groups. The results of this chapter confirm that social capital is one of the best predictors of the perceived frequency of ASB amongst of both students and principals, such that enhancing social capital could have a beneficial effect on reducing bad behaviour in schools. The effect of social capital remained statistically significant in all the models by type of school and size of locality. While other elements linked to economic and cultural capital were associated with the perceived frequency of ASB in the models that considered all the forms of capital, this effect did not remain for all types of schools and localities, confirming that contextual elements must be taken into account before making any conclusions. Although further analyses are necessary in order to understand some of the results presented in this chapter, these findings are of special importance for the design of future policies in Mexico, and contributes to the existing literature about the effects of capital and inequality in the school context.

10.2 The forms of capital and the perceived ASB

Up to this point, the perceived frequency of ASB of students and principals has been analysed using each one of the forms of capital (and its inequality) separately; however, individuals do not experience the effects of economic, social, and cultural capital independently. Therefore, the analysis presented here has the purpose of integrating the variables used in previous models in order to examine the way in which all the three forms of capital and the measures of inequality affect the perception of ASB of students and principals of secondary schools in Mexico. The analysis has been carried out following the same approach as the one presented in the previous sections, that is, the results display different models that show the simultaneous effect of the forms of capital on the perceived frequency of ASB, followed by the effect of inequalities, and then models which incorporate all the variables. This section in divided into two different subsections; the first one will explore the effect of the forms of capital on the students' perceived frequency of ASB using multilevel modelling, to then, in the second one analyse their effect on the principals perception using OLS regressions. The

results of the analysis of the students showed that, after controlling for all the forms of capital and type of school and size of locality, the strongest predictors of the perceived frequency of ASB were the students' social capital, the average level of the students' economic and social capital, and GE(1) of the students' cultural capital. This inequality measure was especially a strong predictor of the perceived frequency of ASB, where an increase in the overall levels of inequality in the students' cultural capital was associated with a substantial increase of the students' perceived frequency of ASB. The results of the principals' models suggested that the strongest predictors of their perceived frequency of ASB were the school social capital and the average level of the students' economic capital, and that principals' of private schools could have considerably lower levels of perceived frequency of ASB compared to those from public schools (the reference category).

10.2.1 The forms of capital and students' perceived ASB

The results for the multilevel models of the students' perceived frequency of ASB that include all the variables of the different forms of capital and inequality are displayed in table 10.1. At the individual level, the multilevel analysis suggests that the social capital of the students is the best predictor of their perceived frequency of ASB, as throughout the different models it had the strongest relationship with this perception. In fact, as observed in model I, when the three forms of capital of the students are analysed together (without controlling for any other variable), social capital has the strongest effect decreasing the perceived frequency of ASB of the students. Interestingly, this seems to be stable after accounting for other elements as the students' social capital remained at a similar level throughout all the models of table 10.1. Although it was expected that the other variables at the individual level (i.e. economic and cultural capital of the students) were not going to affect the students' social capital[35], these results are interesting as the effects of the social capital of the students do not seem to be affected by either any of the other element at the school level. The economic and cultural capital of the students, although significant, seemed to have a relatively small effect on the perceived frequency of ASB.

[35] The results of the analysis of the relationship between the forms of capital displayed in section 8.5 showed that social capital had a very small association with the other two forms of capital (i.e. economic and cultural capital).

Table 10.1: Multilevel Model of students' perceived ASB.

Model:	0	I	II	III	IV	V	VI
Constant	0.379**	0.561**	0.305**	0.515**	0.820**	0.765**	**0.747****
S.E	(0.001)	(0.003)	(0.005)	(0.006)	(0.031)	(0.029)	(0.029)
STUDENT LEVEL							
Student Eco. Capital		0.035**		0.026**	0.018**	0.017**	0.017**
S.E		(0.003)		(0.003)	(0.004)	(0.003)	(0.003)
Student Soc. Capital		-0.417**		-0.412**	-0.404**	-0.404**	**-0.404****
S.E		(0.003)		(0.003)	(0.005)	(0.003)	(0.003)
Student Cul. Capital		0.080**		0.076**	0.072**	0.071**	0.071**
S.E		(0.004)		(0.004)	(0.005)	(0.004)	(0.004)
SCHOOL LEVEL							
Economic capital							
GE(0) *At the bottom*			0.082**	0.033**	-0.037**	*-0.006*	*-0.006*
S.E			(0.010)	(0.009)	(0.013)	(0.011)	(0.011)
GE(1) *Across the distrib.*			-1.829**	-0.979**	*0.269*	*-0.156*	*-0.109*
S.E			(0.206)	(0.187)	(0.270)	(0.237)	(0.237)
GE(2) *At the top*			0.964**	0.502**	*-0.145*	*0.063*	*0.035*
S.E.			(0.161)	(0.146)	(0.189)	(0.177)	(0.176)
Mean Stu. Eco. Capital					0.186**	0.121**	**0.145****
S.E					(0.026)	(0.023)	(0.024)
School Eco. Capital					-0.071**	-0.026*	-0.022*
S.E					(0.012)	(0.011)	(0.011)
Social Capital							
GE(0) *At the bottom*			*0.094*	*0.028*	*-0.051*	*-0.063*	*-0.066*
S.E			*(0.161)*	(0.060)	(0.060)	(0.057)	(0.056)
GE(1) *Across the distrib.*			-8.270**	-5.432**	*-1.758*	*-0.422*	*-0.344*
S.E			(1.445)	(1.292)	(1.333)	(1.201)	(1.192)
GE(2) *At the top*			12.680**	8.083**	*2.355*	*0.907*	*0.871*
GE(0) *At the bottom*			(1.482)	(1.326)	(1.408)	(1.250)	(1.241)
Mean Stu. Soc. Capital					-0.438**	-0.345**	**-0.352****
S.E					(0.035)	(0.029)	(0.029)
School Social Capital					-0.078**	-0.059**	-0.059**
S.E					(0.010)	(0.009)	(0.009)

Cultural Capital							
GE(0) *At the bottom*			*-0.685*	-0.824**	*-0.740*	*0.100*	*0.135*
S.E			*(0.373)*	(0.331)	(0.633)	(0.139)	(0.138)
GE(1) *Across the distrib.*			2.693*	3.041**	*2.774*	*0.934*	**1.044***
S.E			(1.273)	(1.135)	(2.018)	(0.537)	(0.533)
GE(2) *At the top*			-2.076*	-1.986*	*-1.677*	*-0.671*	*-0.817*
GE(0) *At the bottom*			(0.953)	(0.851)	(1.374)	(0.564)	(0.560)
Mean Stu. Cul. Capital					-0.102**	*-0.027*	*-0.017*
S.E					(0.029)	(0.030)	(0.030)
School Cul. Capital					0.042**	0.024**	0.024**
S.E					(0.008)	(0.007)	(0.007)
Type of School							
(ref. Public School)							
Public Technical						*0.005*	*0.004*
S.E						(0.004)	(0.004)
TV School						-0.042**	-0.042**
S.E						(0.004)	(0.004)
Private						-0.066**	-0.066**
S.E						(0.006)	(0.006)
Size of locality							
(ref. 1 to 2,499)							
2,500 to 99,999							0.010**
S.E							(0.004)
More than 100,000							-0.018**
S.E							(0.005)
Between sch. variance	0.010**	0.007**	0.008**	0.006**	0.005**	0.004**	0.004**
	(0.000)	*(0.000)*	(0.000)	*(0.000)*	(0.000)	(0.000)	(0.000)
Within sch. variance	0.037**	0.034**	0.037**	0.034**	0.034**	0.034**	0.034**
	(0.000)	*(0.000)*	(0.000)	*(0.000)*	(0.000)	(0.000)	(0.000)
ICC	0.224	0.171	0.181	0.156	0.131	0.118	0.116
	(0.005)	*(0.004)*	(0.004)	*(0.004)*	(0.003)	(0.003)	(0.003)
Log likelihood	25899.6	31797.9	26299.2	31991.54	31333.18	31478.4	31485.48
-2*log-likelihood	-51799	-63596	-52598	-63983.1	-62666.36	-62957	-62971

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 144,057. ** p<0.01, * p<0.05.*

At the school level, model II shows the effect of all the measures of inequality of the students' capital (without controlling for any other element), where it is observed that all of them but two (GE(0) in social and cultural capital of the students) were significant and with a very large effect. However, the ICC shows that the model did not improve in relation to the previous one, suggesting that students' capital explains more variation in the perceived frequency of ASB than inequality in the students' capital. Indeed, as observed in model III, when all the forms of capital of the students are analysed together with the inequality measures, there is an improvement in the model (as indicated by the log likelihood). Although in model III the effect of inequality remained after the addition of the student capital, and even GE(0) in cultural capital became statistically significant, as shown in model IV, once the average level of all the forms of capital of the students and the school capital measures were incorporated to the model, most measures lost statistical significance. Only GE(0) in economic capital (inequality in the students' economic capital due to an increase of very poor students) had a significant but very small effect. Model IV also shows that all the measures of both the average level of the students' capital and the school capital are statistically significant. However, the effect of the average level of students' capital seems to be considerably stronger than the variables linked to the school capital, suggesting that school characteristics are not as important as those of students in predicting changes in their perceived frequency of ASB.

Once again, these findings confirm Pridemore's (2011) findings about the use of poverty and inequality measures together in studies of crime (or in this case higher perceived frequency of ASB), as models that do not control for both measures could yield partial or misleading results. What is more, it is important not only using controls for both, capital and inequality measures, but also using appropriate variables in order to avoid establishing an effect that indeed corresponds to another omitted variable. That is, as shown in models II and II, despite the statistical significance and the large effect of the measures of inequality (even after controlling for the students' capital), their estimates were indeed capturing the effect of another variable. Therefore, in model IV the inclusion of the capital measures at the school level caused that most inequality measures lost their statistical significance or they reduced considerably their effect, suggesting that the inequality measures of the previous models were capturing the effect of the average level of the student's capital and/or the school capital.

Nevertheless, it cannot be established that inequality does not have an effect on the students' perceived frequency of ASB, as in models V and VI, GE(1) in the students' cultural capital became significant and indeed showed the strongest relationship with the perceived frequency of ASB, even after controlling for type of school and size of locality. Although a more in depth analysis is needed in order to explain this effect (this will be further explored in the following section), it could suggest that inequality in the students' cultural capital might be an important predictor of the perceived frequency of ASB but only among students of some types of schools and localities. After controlling for all the elements in the model, an increase in the overall levels of inequality in the students' cultural capital GE(1) was associated with higher levels of perceived frequency of ASB. Although no other inequality measure was significant, it is important to note that these measures account only for inequality within schools. Yet, as shown in models V to VI, the average level of the students economic and social capital seem to be good predictor of the students' perceived frequency of ASB, indicating that some inequalities between schools might have an effect on this perception. In this sense, it can be argued that students that attend schools with high levels of individual social capital tend to perceive lower antisocial behaviour, and those who attend schools with higher levels of economic capital perceive more ASB (yet once again the effect of this economic capital measure is in the opposite direction to the one expected).

Lastly, it can be noted that although the results of model VI suggest a lower perceived frequency of ASB among students of TV and Private schools compared to those in Public schools, and a higher perception in medium localities and lower in the largest cities, compared to the smallest communities, both of these effects seem to be relatively small. Although model VI did not have the best fit statistics as indicated by the log likelihood, all the variables were included in the final analysis because one of the aims of these research is the analysis of the effect of inequality over and above deprivation. Hence, measures of both elements were included in the model (indeed the results suggest that the inequality measures decrease the accuracy of the model). The Intra Class Correlation coefficient (ICC) of the final model showed that the overall effect of the schools on dependent variable was 0.116; that is, 11.6 percent of the variation in the perceived frequency of ASB of the students is explained by differences between schools. Therefore, the majority of the variability in the perceived frequency of ASB of students is explained differences that exists between the students of each school.

10.2.2 The forms of capital and principal's perceived ASB

Table 10.2 presents the results of the analysis of the relationship between the principals' perceived frequency of ASB and the forms of capital and their inequality. The main findings of this analysis are the importance of contextual factors, and the fact that the school economic capital does not seem to have any effect on the principals' perception, as the variable was not statistically significant throughout most models. In contrast, social and cultural capital seemed to be good predictors the principals perceived frequency of ASB. Model I shows that the school social capital (i.e. the perception of school coexistence by the principal) was the strongest predictor of the dependent variable, predicting a decline in the levels of perceived frequency of ASB. Indeed, the effect of the school social capital remained after controlling for all the different elements in the model. Although cultural capital had a medium effect in model I (when only the other two types of capital were included), its effect decreased considerably after controlling for the average level of the students' capital, the inequality measures, type of school, and size of locality. Model I, where only the school capital measures were taken into account, explained 25.5 percent of the variation in the principals' perceived frequency of ASB, most of which it seems to be attributed to the social capital measure.

Table 10.2: OLS regression of principals' perceived ASB.

Model:	I	II	III	IV	V	VI
Constant	0.798**	0.284**	0.741**	0.817**	0.655**	**0.695****
S.E	(0.019)	(0.012)	(0.023)	(0.055)	(0.056)	(0.055)
Economic Capital						
School Economic Capital	*0.007*		-0.028	-0.152**	*-0.018*	*-0.032*
S.E	*(0.020)*		(0.022)	(0.025)	*(0.024)*	*(0.023)*
GE(0) *At the bottom*		*0.046*	*0.015*	-0.116**	-0.036**	*-0.013*
S.E		*(0.026)*	*(0.023)*	(0.025)	(0.023)	*(0.023)*
GE(1) *Across the distrib.*		-1.511**	*-0.759*	2.019**	*0.866*	*0.400*
S.E		(0.511)	*(0.461)*	(0.508)	*(0.469)*	*(0.465)*
GE(2) *At the top*		0.868*	*0.437*	-1.103**	*-0.506*	*-0.268*
S.E		(0.411)	*(0.364)*	(0.377)	*(0.347)*	*(0.343)*
Mean Student Eco. Capital				*0.468***	0.298**	**0.201****
S.E				(0.050)	(0.047)	(0.047)

Social Capital						
School Social Capital	-0.718**		-0.705**	-0.660**	-0.597**	**-0.585****
S.E	(0.022)		(0.025)	(0.022)	(0.020)	(0.020)
GE(0) *At the bottom*		*0.116*	*0.012*	*-0.046*	*-0.067*	*-0.080*
S.E		*(0.145)*	*(0.126)*	*(0.123)*	*(0.112)*	*(0.111)*
GE(1) *Across the distrib*.		-11.495**	-7.950**	*-5.073*	*-1.155*	*-0.499*
S.E		(3.171)	(2.760)	*(2.715)*	*(2.492)*	*(2.458)*
GE(2) *At the top*		15.667**	11.455**	6.781*	*2.354*	1.377
S.E.		(3.263)	(2.845)	(2.828)	*(2.596)*	(2.562)
Mean Student Soc. Capital				-0.347**	-0.126*	*-0.090*
S.E				(0.062)	(0.058)	(0.057)
Cultural Capital						
School Cultural Capital	0.194**		0.174**	0.124**	0.070**	0.059**
S.E	(0.017)		(0.017)	(0.017)	(0.016)	(0.016)
GE(0) *At the bottom*		*-1.114*	*-0.340*	*-0.212*	*-0.134*	*-0.113*
S.E		*(0.843)*	*(0.733)*	*(0.716)*	*(0.656)*	*(0.647)*
GE(1) *Across the distrib*.		*2.028*	*0.06*	*-0.801*	*0.009*	*-0.301*
S.E		*(2.851)*	*(2.477)*	*(2.423)*	*(2.220)*	*(2.190)*
GE(2) *At the top*		*-0.359*	*0.734*	*1.627*	*0.784*	*1.036*
S.E.		*(2.122)*	*(1.843)*	*(1.798)*	*(1.647)*	*(1.625)*
Mean Student Cul. Capital				-0.216**	*0.063*	*-0.006*
S.E				(0.060)	*(0.063)*	(0.063)
Type of School *(ref. Public School)*						
Public Technical					*-0.006*	*-0.001*
S.E					*(0.009)*	*(0.009)*
TV School					-0.125**	-0.093**
S.E					(0.010)	(0.010)
Private					-0.242**	**-0.227****
S.E					(0.013)	(0.013)
Size of locality *(ref. 1 to 2,499)*						
2,500 to 99,999						0.086**
S.E						(0.009)
More than 100,000						0.095**
S.E						(0.011)
R-squared	0.255	0.042**	0.279**	0.317	0.428	0.444
Adjusted R-squared	0.255	0.040**	0.276**	0.314	0.425	0.440

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05.*

The results of models II and III suggested that some inequality measures of the students' capital were important predictors of the principals' perceived frequency of ASB; however, as shown in model IV, when controlling for the means of the students' capital, most of these measures lost their statistical significance. Only those inequality measures linked to the students' economic capital had an important and statistically significant effect on the perceived frequency of ASB. Yet, after controlling for type of school and size of locality in models V and VI, even the inequality measures linked to economic capital lost their statistical significance. Indeed, model II, which accounted only for inequality in the students' capital, explained just 4 percent of the variation in the principals' perceived frequency of ASB. The results of this analysis proved the importance of contextual factors in order to untangle complex relationships like the one analysed in this research. As shown in chapter 2, in Mexico there are enormous disparities between the wealthiest and poorest schools, where the availability of resources in private schools and among private school students are considerably higher compared to the other types of schools, and those living in the biggest cities are, on average, wealthier than those from small and medium sized localities.

This situation could explain why after controlling for type of school and size of locality, the effect of most inequality and capital measures changed drastically. In fact, as observed in model VI, principals of TV schools (most of which are located in small localities) and especially those from private schools have much lower perceived frequency of ASB compared to Public schools. Similarly, principals from medium and large localities had higher perceived frequency of ASB in relation to those from small communities, but these effects were not very strong. What is more, in model IV the average levels of the different forms of capital were also good predictors of the principals' perceived frequency of ASB; however, when controlling for type of school and size of locality (model VI), only the average level of economic capital remained significant (predicting higher perceived frequency of ASB), confirming again the importance of context. The results of model VI (the model that controlled for all the different variables in the analysis) explained 44.4 percent of the variation in the principals' perceived frequency of ASB, compared to 31.4 when only capital and inequality measures were included. Finally, it can be stated that inequalities within schools do not appear to affect the perceived frequency of ASB of principals, but similar to the students' model, some inequalities between schools in particular linked to school social capital and the average level of the students' economic capital are good predictors of it.

This section has explored the relationship between the forms of capital, their associated inequalities, and the perceived frequency of ASB of students and principals of secondary schools in Mexico, based on the fact that all individuals are endowed by a certain level of all the forms of capital. The results confirmed, once again, that Bourdieu's (1986) division of capital was appropriate for this study, as different elements associated with economic, social, and cultural capital seem to explain differences in the perceived frequency of ASB in schools. What is more, both the students and principals' models demonstrated the importance of using a multidimensional approach in the investigation of social processes, as the results of this section were to some extent different to the ones shown in chapter 9 (where each form of capital was examined separately). This could suggest that some studies in the past could have generated partial or inconclusive conclusions about the effects of capital and inequalities in the school context, as quantitative research that explores the link between all the forms of capital and crime and ASB is scarce. Additionally, the analyses presented here showed that the use of an ecological approach was adequate for this research because, as pointed out by Bronfenbrenner (1979, 1994), the behaviour of students seems to be shaped by their own individual characteristics, their environment, and other more distant settings. In this sense, it is important to note that not only student and school level factors were associated with the perceived frequency of ASB, as the results of this section suggest that the effect of capital and inequality could be very different among those who attend different types of schools or live in localities of different sizes.

The results of the students' perceived frequency of ASB showed that after controlling for all the forms of capital, their inequalities, and type of school and size of locality, the effect of GE(0) and GE(2) in the students' cultural capital became non-significant. This means that an increase in the presence of very deprived (GE(0)) or wealthy students (GE(2)) in terms of cultural capital, do not affect the way students perceived the frequency of ASB in their school, and the results of section 9.4.2 could have picked the effect of other element that was not included before. Yet, GE(1), that is, an increase in the overall levels of the students' cultural capital, was still linked with an increase in the students' perceived frequency of ASB. Similarly, while the average level of the students' cultural capital had a medium effect on the model where just cultural capital was included (see section 9.4.2), this element was non-significant when the other forms of capital were incorporated into the analysis. The students' social capital and its average for each school remained the most important

elements associated with the perceived frequency of ASB of students, always decreasing it. Overall, these findings suggest that strengthening social connections in the school context could help to reduce the frequency with which ASB is perceived in the school context, regardless of the economic or cultural situation of students and their schools. In relation to economic capital, only the average level of the students' capital predicted higher perceived frequency of ASB, however, this effect was again in the opposite direction to the one suggested by the literature.

In relation to the principals' perceived frequency of ASB, none of the measures of inequality in the students economic capital were significant after controlling for type of school and size of locality. Similarly, the average level of the students' social and cultural capital did not seem to be associated with the perceived frequency of ASB after controlling for these contextual elements. These findings also suggest that the models presented in chapter 9 could have shown inaccurate results as they did not account for the effect of the other forms of capital, thus attributing the effect of the missing variables to the capital measure included in the model. Yet, because the average level of the students' social and cultural capital lost its statistical significance after controlling for type of school and size of locality, it could indicate that these elements are linked to the perceived frequency of ASB but only among some principals. The average level of the students' economic capital remained an important predictor, but contrary to what was expected, it increased the perceived frequency of ASB. The social capital of the school remained also an important factor, reducing the perceived frequency of ASB of the principals.

As mentioned before, the results presented here also indicate important differences between school type, specifically between Private and Public schools, which do not seem to be linked to school economic capital, as this element was not an important predictor of the perceived frequency of ASB. Similarly, principals of large and middle localities had more perceived frequency of ASB compared to small localities, suggesting that the effects of capital and inequality on the perception of ASB could be higher in urban than in rural areas. Although at this point is hard to detect the reasons why the inclusion of type of school and size of locality changed the results of the analysis, it can be established that economic, social, and cultural capital, and their associated inequalities affect differently students and principals of different background. Thus, a more in-depth analysis is needed in order to

detect the effects of capital and inequality among students and principals of different types of schools and who live in localities of different sizes.

10.3 Effect of type of school and size of locality on the perceived ASB

The analyses presented in the previous section of this chapter showed the importance of theoretically driven models, where the use of the forms of capital of Bourdieu (1986) and an ecological approach based on Bronfenbrenner's (1979, 1994) ideas proved to be essential in order to understand the effects of capital and inequalities in the school context. In this sense, the results of the previous section showed that economic, social, and cultural capital, and their associated inequalities have a different effect on the perceived frequency of ASB of students and principals. Additionally, without the inclusion of type of school and size of locality, the analyses would have showed completely different results, and although probably some of them would still be representative of Mexican schools, any generalisation about the effects of the forms of capital would be partial. Yet, this does not mean that only environmental factors are to be blamed for the perception of ASB in schools, as Bronfenbrenner (1979) noted that the own characteristics of individuals, the environment, and the interaction between them shape human development. Hence, the purpose of this section is to go even further in the exploration of the perceived frequency of ASB in schools, by analysing the effects of capital and inequalities across different types of schools and localities. This analysis also aims to untangle some of the previous findings, especially those that contradicted previous research on the field (e.g. higher economic capital predicting higher perceived frequency of ASB) or that have not been explored in the past (e.g. the effects of inequality in cultural capital).

The analysis was carried out using Multiple Group Analysis on MPlus, which allowed the exploration of '*measurement invariance and population heterogeneity*' (Muthen and Muthen 2011:421) that is, it allows to simultaneously test for the effects of the forms of capital and inequality across different groups or in this case for each school type and locality of different sizes. This analysis is divided into two subsections: the first one will explore how the forms of capital and their inequalities affect the perceived frequency of ASB of students from different types of schools and localities, to then examine in the following section the

perception of principals[36]. The finding confirm that social capital is one of the best predictors of the perceived frequency of ASB of both students and the principals, as it was the only form of capital that was significant and had an important negative effect across all the groups. In this sense, the students' social capital and the average level of their social capital predicted an important decrease in the perceived frequency of ASB of students of all the types of schools and from localities of all sizes, while the school social capital was linked to lower perceived ASB among principals from all the groups.

While other social capital measures predicted a decrease on the perceived frequency of ASB, the effect was not statistically significant across all the categories. Similarly, the different variables linked to economic and cultural capital predicted important changes in the perceived frequency of ASB of students and principals, yet, these effects applied only for some types of school and for some localities of different size. In relation to inequality, none of the measures were statistically significant in the principals' analysis, and thus, it can be concluded that disparities in capital among students of the same school are not linked to the way principals perceive the frequency of ASB. Nevertheless, some measures of inequality linked to the students' social and cultural capital had an important effect on the students' perception. The effects of inequalities changed in strength and direction according to the part of the distribution in which the measures were focused, suggesting that disparities within schools can be linked to different outcomes if these originate from an increase in the overall levels of inequality, or if they result from the presence of very deprived or wealthy students. In this sense and similar to the results presented in previous models, it seems that despite the negative connotation that the world inequality has, inequality in the students' cultural capital at the top and bottom of the distribution (i.e. the presence of very wealthy and deprived students in terms of cultural capital) can reduce their perceived frequency of ASB.

[36]Appendices 5 to 10 show Multiple Group analyses for each of the forms of capital. Similar to the conclusions of this chapter, the results suggest that contextual factors must be taken into account in the exploration of the effects of capital and inequality, as each one of the categories of the variables '*type of school*' and '*size of locality*' showed very different patterns.

10.3.1 Students' perceived ASB by type of school and size of locality

Table 10.3 presents the Multilevel Multiple Group Analysis of the relationship between the forms of capital and the students' perceived frequency of ASB for each type of school and locality of different size. Similar to previous findings, it can be noted that in both models most of the variance in the perceived frequency of ASB is explained by differences within schools (i.e. between students) and, although there is a difference in the log likelihood between the models, this difference is very small. The ICC of the different models show that differences between schools explain 13.5 percent of the variation in the perceived frequency of ASB of students of private schools, 13.2 percent for TV school students, and only 7.7 of those attending Public and Technical schools. In the same way, the ICC shows that 15.8 percent of the variation of the perception of students from small localities is attributed to differences between this type of schools, 9.8 percent in the case of medium localities, and 10.3 for the largest cities. Another important element to highlight from this results is the fact that the constant or intercept of most of the models is close to 1 (with the exception of TV schools and small localities); which means that the expected perceived frequency of ASB is around the highest possible level when all the other variables are 0. These results suggest that among students of these groups, most of the elements that were statistically significant decreased the perceived frequency of ASB.

At the individual level (the variables only linked to each student), the results are quite conclusive as social capital is again the strongest predictor of the dependent variable in all the groups, always decreasing the perceived frequency of ASB. Thus, it can be established that a good perception about social connections and coexistence among students of all backgrounds seems to always decrease the frequency with which they perceive ASB in their schools. Although for some groups the other two forms of capital were statistically significant, their effect on the perceived frequency of ASB seems to be small (always increasing it). More studies are needed in order to explain why higher levels of economic and cultural capital in students are linked to higher perceived frequency of ASB, yet, this could be in line with the findings of chapter 7, where it was discovered that students from the poorest schools and localities had considerably less perception ASB than the rest of them.

Table 10.3: Multilevel Model of students' perceived ASB
by type of school and size of locality.

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	**0.985****	**0.919****	**0.565****	**1.160****	**0.550****	**1.045****	**0.992****
S.E	(0.057)	(0.024)	(0.042)	(0.106)	(0.042)	(0.067)	(0.086)
STUDENT LEVEL							
Student Eco. Capital	0.018**	0.021**	0.020**	*-0.021*	0.028**	0.023**	*0.005*
S.E	(0.006)	(0.007)	(0.007)	*(0.015)*	(0.006)	(0.007)	*(0.006)*
Student Soc. Capital	**-0.421****	**-0.392****	**-0.368****	**-0.453****	**-0.354****	**-0.419****	**-0.428****
S.E	(0.008)	(0.009)	(0.009)	(0.012)	(0.008)	(0.009)	(0.007)
Student Cul. Capital	0.071**	0.075**	0.094**	0.033**	0.083**	0.070**	0.065**
S.E	(0.008)	(0.009)	(0.010)	(0.012)	(0.008)	(0.009)	(0.007)
SCHOOL LEVEL							
Economic Capital							
GE(0) *At the bottom*	*0.062*	*-0.045*	*-0.022*	*0.058*	*-0.023*	*-0.122*	*-0.103*
S.E	(0.056)	(0.049)	(0.013)	(0.066)	(0.013)	(0.078)	(0.112)
GE(1) *Across the distrib*.	*-0.618*	*0.458*	*0.380*	*0.009*	*0.341*	*2.723*	*3.227*
S.E	(1.883)	(1.613)	(0.266)	(0.111)	(0.263)	(1.727)	(3.340)
GE(2) *At the top*	*-0.422*	*-0.994*	*-0.229*	*-0.001*	*-0.196*	*-3.414*	*-3.455*
S.E.	(1.947)	(1.624)	(0.181)	(0.069)	(0.178)	(1.815)	(3.766)
Mean Stu. Eco. Capital	**-0.144****	*-0.115*	**0.240****	**-0.285***	**0.216****	*-0.088*	*-0.087*
S.E	(0.053)	(0.066)	(0.033)	(0.127)	(0.032)	(0.063)	(0.099)
School Eco. Capital	-0.058**	*-0.020*	*-0.008*	*-0.031*	*-0.029*	-0.091**	-0.054**
S.E	(0.021)	(0.023)	(0.016)	(0.046)	(0.016)	(0.023)	(0.020)
Social Capital							
GE(0) *At the bottom*	*-0.044*	**-0.100****	*-0.022*	*-0.115*	**0.333****	*-0.021*	*-0.073*
S.E	(0.074)	(0.035)	(0.083)	(0.092)	(0.076)	(0.048)	(0.046)
GE(1) *Across the distrib*.	*-0.154*	*-0.088*	*-1.445*	*0.083*	*-2.584*	*0.003*	*-0.346*
S.E	(0.105)	(0.131)	(2.129)	(2.567)	(1.884)	(0.201)	(0.346)
GE(2) *At the top*	**-0.143***	*-0.038*	*2.135*	*-0.119*	*2.986*	*0.024*	*-0.049*
S.E.	(0.083)	(0.113)	(2.239)	(2.805)	(1.989)	(0.124)	(0.125)
Mean Stu. Soc. Capital	**-0.422****	**-0.375****	**-0.341****	**-0.429****	**-0.376****	**-0.534****	**-0.482****
S.E	(0.059)	(0.074)	(0.046)	(0.081)	(0.044)	(0.076)	(0.057)
School Soc. Capital	*-0.007*	0.059**	**-0.103****	-0.058*	-0.088**	*-0.011*	*-0.024*
S.E	(0.017)	(0.021)	(0.014)	(0.028)	(0.014)	(0.018)	(0.017)

Cultural Capital							
GE(0) *At the bottom*	**-2.909***	*-0.250*	**-1.276****	**0.753***	**-1.423****	*-0.150*	**-1.790****
S.E	(1.241)	(0.136)	(0.418)	(0.376)	(0.440)	(0.161)	(0.751)
GE(1) *Across the distrib.*	*6.828*	*2.839*	**4.769****	**0.533***	**5.514****	*1.086*	**3.576****
S.E	(4.114)	(2.053)	(1.570)	(0.266)	(1.607)	(1.915)	(1.065)
GE(2) *At the top*	*-2.598*	*-2.786*	**-3.055****	**0.234***	**-3.291****	*-0.501*	*-0.061*
S.E.	(2.893)	(2.112)	(1.158)	(0.118)	(1.169)	(1.980)	(0.104)
Mean Stu. Cul. Capital	**0.151****	*-0.060*	*-0.091*	*-0.067*	**0.192****	*0.006*	*0.011*
S.E	(0.058)	(0.075)	(0.050)	(0.094)	(0.048)	(0.060)	(0.057)
School Cul. Capital	*0.015*	*0.015*	0.048**	*0.013*	0.055**	0.038**	*0.015*
S.E	(0.012)	(0.014)	(0.013)	(0.019)	(0.012)	(0.013)	(0.011)
Between sch. var.	0.003	0.003	0.005	0.005	0.006	0.004	0.004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within sch. var.	0.036	0.036	0.033	0.032	0.032	0.037	0.035
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.077	0.077	0.132	0.135	0.158	0.098	0.103
Log likelihood	31787.9	31787.9	31787.85	31787.85	31644.9	31644.9	31644.9
-2*log-likelihood	-63575.7	-63575.7	-63575.7	-63575.7	-63290	-63290	-63290

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 144,057. ** p<0.01, * p<0.05*

In relation to the variables linked to economic capital at the school level, the results showed a remarkable difference between the different types of schools and localities of different size. The average level of the students' capital was the strongest predictor of the perceived frequency of ASB, but only among students of Public, TV and Private schools, and the smallest localities. Higher average levels of students' economic capital predicted a decrease in the perceived frequency of ASB in Public and Private schools and an increase it in TV schools and the smallest localities. Once more, this goes in line with previous analyses as students from TV schools and the smallest localities have, on average, considerably less economic capital than those from the other groups, but also had some of the lowest perceived frequency of ASB. The school economic capital had a significant effect among Public school students and in medium and large localities, always decreasing the perceived frequency of ASB. Despite the small effect of school economic capital, these results show the importance of more investment in schools, not only because it could improve social

conditions in the school context, but because the lack of infrastructure in schools has been linked to other problems, such as low attainment and school performance (SEP 2013b, OECD 2015b), which in turn have been associated with higher levels of ASB (Sabates, Feinstein, and Shingal 2011). None of the inequality measures of the students' economic capital was significant, suggesting again that the differences in economic capital between schools are better predictors of ASB in schools than those within schools (i.e. between students).

The results of social capital at the school level showed that, the average level of the students' social capital decreases the perceived frequency of ASB among students of all types of school and localities, having a very strong effect, especially in middle and large localities. Therefore, it can be concluded that students of schools where most people have a good perception about social connections, including relations with their teachers, have on average lower perceived frequency of ASB. In contrast, the perception of principals about the social connections does not seems to affect the students perceived frequency of ASB, with the exception of TV schools, where school social capital predicted a small to medium decrease on the dependent variable. Yet, it is important to remember that as shown in chapter 8, both latent constructs (student and school social capital) were constructed based on the perception of different behaviours and activities, and thus, it is not possible to compare their results. School social capital also predicted lower levels of students' perceived frequency of ASB in Technical and Private schools and in small localities, however, the effect was small.

Compared to the analysis presented in table 10.1, some measures of inequality in the students' social capital seem to affect the perceived frequency of ASB of students of Public and Technical schools, and among those from the smallest localities. Among students of the smallest localities, an increase in the presence of students with very bad perception about the social connections (GE(0)) predicted higher levels of perceived frequency of ASB. However, the results of Public and Technical schools could confirm the findings of chapter 9 about the possible positive effect of some inequalities. The measure of inequality that focused on disparities in social capital at the top of the distribution (GE(2)), predicted lower levels of perceived frequency of ASB among students of Public schools; suggesting that an increase in students with a very good perception of social connections could have a positive effect, improving the behaviour or perception of ASB of others. Similarly, the measure that focuses on inequality at the bottom (GE(0)) was also linked to lower levels in Technical

schools, which could mean that in this type of school, the bad perception of social connections of some students can be compensated by those students with higher levels of social capital. Nonetheless, in both cases it is necessary to further explore this effect in order to understand why disparities due to very low or high levels of social capital decrease the frequency with which students perceive ASB in their schools.

Some of the biggest differences between the results of table 10.1, and those presented here, are linked to the effects of cultural capital on the students' perceived frequency of ASB. School cultural capital was significant only for TV schools, and in small and medium localities, having a very small effect on the perceived frequency of ASB of students who attend these schools. Despite not being statistically significant in the analysis presented in section 10.1, the average level of the students' cultural capital had an important effect among students of Public schools and in the smallest localities, predicting an increase in the perceived frequency of ASB. Although this is a very important finding, suggesting that differences in cultural capital between schools could be linked to higher levels of perceived frequency of ASB, probably the most relevant discovery of the effects of cultural capital is in relation to the inequality measures, which show the effects of disparities within schools. The findings of table 10.3 show that inequalities in the students' cultural capital are one of the best predictors of the perceived frequency of ASB among students of some types of schools and localities, yet, the effect and direction vary considerably.

Overall, increasing levels of inequality at all parts of the distribution seem to be associated with higher perceived frequency of ASB among Private school students, that is, disparities in cultural capital always seem to predict worse behaviour as perceived by students of this type of school. Similarly, an increase in the overall levels of inequality (GE(1)) is associated with a large increase in the perceived frequency of ASB of students from TV schools, and in those from small and large localities. However, an increase in inequalities at the top (GE(2)) and at the bottom of the distribution (GE(0)) predicted an immense decrease in the perceived frequency of ASB in TV schools and in the smallest localities. GE(0) also predicted a decrease in the perceived frequency of ASB of students of Public schools and large localities. Even though more studies are necessary to confirm these findings, this positive effect of the disparities in cultural capital could confirm the hypotheses presented in chapter 9, where it was suggested that in some cases the adverse effects linked to the lack of cultural

capital could be compensated by students with higher levels of this form of capital. Moreover, in the case of TV schools and among students of small localities, there could be a threshold effect, where increasing levels of inequality in cultural capital could have a negative impact on them, yet, increasing levels of students with very low or high levels of this capital, could improve the overall behaviour of students. However, more studies are needed in order to confirm or refute these hypotheses, especially qualitative research.

10.3.2 Principals' perceived ASB by type of school and size of locality

Table 10.4 displays the results of the Multiple Group Analysis by type of school and size of locality for the relationship between the forms of capital and the principals' perceived frequency of ASB. These results show great differences in the effect of the forms of capital on the perception of ASB, where the variance explained by the different models of each type of school varies from 17.3 percent in Technical schools to 31.8 in TV schools. The models by size of locality explained between 23.5 percent of the variation in the perceived frequency of ASB of principals of medium localities and 45.3 in the case of those from the largest localities. The results of table 10.4 also show that there is an important variation in the constant between the different models. For instance, in Public, Technical and Private schools and in medium and large localities the intercept is above or close to the maximum level of perceived ASB, which could suggest that in most cases, the forms of capital decrease the perceived frequency of ASB among principals of these groups (or improve how they perceive bad behaviour). However, the results of TV schools and small communities showed that the constant is much lower compared to the rest of the groups, which could indicate important differences in the effect and direction of the forms of capital.

In relation to the effect of economic capital, table 10.4 shows that school economic capital decreases the perceived frequency of ASB of principals of Public schools and those from medium and large localities (despite not being significant in table 10.2). This indicates that at least for these groups, economic capital matters as principals of schools with better infrastructure and equipment perceive there to be less ASB compared to those from more disadvantaged schools. On the contrary, the average of the students' economic capital predicted higher perceived frequency of ASB in Public, Technic, and TV schools, and in small localities. At least for Public schools, more research is needed to understand why this effect

goes against existing research in the field that indicates that poverty and deprivation are linked to ASB and disorder. Yet, the results for TV schools and small localities could be in line with previous findings, as it was shown that these schools have the largest disparities in economic capital, and hence, the increase on the perceived frequency of ASB could be linked to the heterogeneity of the groups. All the inequality measures of the students' economic capital did not reach statistical significance, and thus, it can be concluded that disparities in economic capital within schools do not predict the principals' perceived frequency of ASB.

As expected, school social capital is one of the best predictors of the perceived frequency of ASB of principals, as a better perception about social connections among principals of all schools types and from localities of all sizes was associated with a decrease of this problem. Despite the not being statistically significant in the results of table 10.2, the results of table 10.4 show that the average level of the students' social capital predicted a decrease of the perceived frequency of ASB among principals of Public and Technical schools, and in those of middle and large localities. None of the inequality measures linked to the students' social capital reached statistical significance, and thus, it can be concluded that differences in the way students perceive social connections within schools (or between students) are not associated to changes in how principals perceive the frequency of ASB. Overall, the results for this form of capital showed that it is highly important to have a good coexistence in schools, as principals from all types of schools and localities had at least one element associated with social capital that decreased how they perceived the frequency of ASB.

Lastly, cultural capital was only associated with the perceived frequency of ASB among principals of TV schools, and from small and medium localities. School cultural capital predicted an increase on the perceived frequency of ASB in principals of TV schools and those from small and medium localities, although the effect for mid-sized communities was relatively small. Similarly, higher average levels of the students' cultural capital were linked with a higher perceived frequency of ASB among principals of TV school and from small localities. Once again, more in depth analyses are needed in order to untangle these findings, as the direction of the effect of cultural capital in these groups goes against existing studies that suggest that higher levels of cultural capital are linked to better educational outcomes. Yet, similarly to the effect seen for economic capital, the fact that cultural capital predicted higher perceived frequency of ASB among principals of TV schools and in those from smaller

Table 10.4: OLS regression of principals' perceived ASB by type of school and size of locality

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	**1.060****	**0.852****	**0.394****	**0.974****	**0.400****	**1.176****	**1.759****
S.E	(0.016)	(0.205)	(0.068)	(0.231)	(0.066)	(0.172)	(0.199)
Economic Capital							
School Eco. Capital	**-0.142****	*-0.075*	*0.023*	*-0.083*	*-0.010*	**-0.183****	**-0.339****
S.E	(0.057)	(0.070)	(0.031)	(0.085)	(0.030)	(0.064)	(0.048)
GE(0) *At the bottom*	*0.071*	*0.029*	*-0.031*	*0.039*	*-0.026*	*-0.165*	*-0.471*
S.E	(0.153)	(0.132)	(0.025)	(0.132)	(0.025)	(0.215)	(0.257)
GE(1) *Acr. the distrib.*	*-0.204*	*-4.712*	*0.787*	*0.273*	*0.776*	*2.741*	*14.079*
S.E	(4.889)	(4.001)	(0.501)	(0.903)	(0.494)	(4.873)	(7.887)
GE(2) *At the top*	*-0.159*	*5.822*	*-0.474*	*0.168*	*-0.499*	*-2.052*	*-15.061*
S.E.	(5.083)	(3.974)	(0.365)	(0.791)	(0.360)	(4.969)	(8.943)
Mean Stu. Eco. Capital	**0.425****	**0.363***	**0.240****	*-0.145*	**0.218****	*0.173*	*-0.125*
S.E	(0.136)	(0.179)	(0.056)	(0.265)	(0.055)	(0.151)	(0.230)
Social Capital							
School Soc. Capital	**-0.587****	**-0.524****	**-0.602****	**-0.649****	**-0.573****	**-0.567****	**-0.637****
S.E	(0.047)	(0.061)	(0.028)	(0.051)	(0.027)	(0.052)	(0.039)
GE(0) *At the bottom*	*-0.274*	*-0.004*	*-0.231*	*-0.060*	*-0.285*	*-0.247*	*-0.015*
S.E	(0.374)	(0.351)	(0.469)	(0.153)	(0.584)	(0.260)	(0.098)
GE(1) *Acr. the distrib.*	*0.524*	*-0.391*	*0.153*	*0.861*	*-0.220*	*0.667*	*-0.754*
S.E	(0.753)	(0.955)	(3.813)	(4.350)	(3.663)	(1.215)	(1.298)
GE(2) *At the top*	*0.469*	*-0.178*	*1.566*	*-1.002*	*1.170*	*0.890*	*-0.132*
S.E.	(0.724)	(0.917)	(3.804)	(4.679)	(3.569)	(1.129)	(1.185)
Mean Stu. Soc. Capital	**-0.473****	**-0.410***	*-0.052*	*-0.065*	*-0.121*	**-0.412***	**-0.293***
S.E	(0.162)	(0.217)	(0.071)	(0.142)	(0.069)	(0.179)	(0.129)
Cultural Capital							
School Cul. Capital	*0.048*	*0.000*	**0.128****	*0.058*	**0.131****	0.097**	*0.038*
S.E	(0.032)	(0.041)	(0.026)	(0.035)	(0.024)	(0.037)	(0.026)
GE(0) *At the bottom*	*2.815*	*-0.307*	*-0.129*	*-1.128*	*0.263*	*-0.302*	*-0.624*
S.E	(4.116)	(0.136)	(1.079)	(1.384)	(1.064)	(0.933)	(2.002)
GE(1) *Acr. the distrib.*	*-7.641*	*3.689*	*0.027*	*1.115*	*-1.406*	*3.112*	*0.147*
S.E	(13.261)	(5.524)	(3.321)	(1.784)	(3.282)	(5.240)	(3.727)
GE(2) *At the top*	*5.077*	*-3.585*	*0.866*	*0.517*	*1.948*	*-2.478*	*0.441*
S.E.	(9.231)	(5.204)	(2.242)	(1.073)	(2.218)	(4.947)	(1.923)
Mean Stu. Cul. Capital	*-0.252*	*0.026*	**0.233****	*0.015*	**0.372****	*-0.342*	*-0.479*
S.E	(0.152)	(0.202)	(0.087)	(0.184)	(0.081)	(0.160)	(0.137)
R-squared	0.224	0.173	0.318	0.286	0.299	0.235	0.453

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).
*N= 5,529. ** p<0.01, * p<0.05*

communities could be linked to the heterogeneity of these groups, where the effect only occurs on certain contexts. Inequality in the students' cultural capital did not predict any change in the perceive frequency of ASB for any type of school or locality of any size, and therefore, it can be concluded that inequalities within schools in the students' cultural capital are not linked to the perceived frequency of ASB of the principals.

The results of the models that analysed the effects of the forms of capital and their inequality on the perceived frequency of ASB in different types of schools and localities confirm that social capital is one of the best predictors of this problem, as different elements linked to this capital decreased the perception of students and principals from all groups. Therefore, it can be concluded that fostering good social connections in the school context could be a key factor to reduce this problem, regardless of the background or environment of schools. Although the results of the other two forms of capital do not allow the establishment of general conclusions that apply to all contexts, there were important findings that contribute to the existing research about the effect of capital and inequality in schools and which could be used for the development of more accurate public policies. Besides the effect of social capital, the main finding of this section is linked to the importance that the environment or context plays in the development of individuals, as the results presented here confirm that the behaviour of individuals is shaped by their own characteristics, their social relationships, and the world around them (Bronfenbrenner 1979).

Therefore, researchers must consider the particularities of each context before establishing any general conclusion about the consequences of capital and inequality, as the effects of economic and cultural capital seem to change according to the characteristics of each type of school and locality. Moreover, the analyses presented in this section proved that some results of the models showed in section 10.2 could be partial or misleading, as some of the effects associated with economic and cultural capital only applied to some types of schools and localities. Hence, it is not only important that researchers contemplate the unique elements and characteristics of each context, but also that policy makers address the problem of ASB with interventions that tackle the specific vulnerabilities of each school type and locality. Lastly, the findings of this section show the importance of carrying out a more in-depth analysis in the future in order to further understand the impact of capital and inequality in schools. For instance, the results of presented here suggests that tackling some

inequalities in economic capital between schools might reduce the perception of ASB among students' of some types of schools (e.g. average level of students' economic capital in Public and Private schools). However, other effects such as the average level of students' economic capital in TV schools and small localities are in the opposite direction to what has been suggested in previous studies. Similarly, some effects of cultural capital, specifically of its inequality in the students' capital require further analysis to understand how more differences within schools could possibly have a positive outcome.

10.4 Conclusions

This chapter presented an analysis of the joint effect of the forms of capital and their inequalities on the perceived frequency of ASB of students and principals of secondary schools in Mexico. The chapter began with an examination of the students and principals' perceived frequency of ASB using the same approach as the one used in chapter 9, to then present Multiple Group Analyses that allowed the exploration of the effects for each type of school, and in localities of different size. Overall, the analysis presented in this chapter shows the importance of a theoretically based approach, as some elements highlighted in chapter 4 do not only proved to be relevant in the context of this research, but also helped to discover important factors about the effects of capital and inequality in schools. In this sense, three theoretical approaches were essential to untangle the relationship between capital, inequality, and the perceived frequency of ASB in schools: the forms of capital of Bourdieu (1986), an ecological approach based on Bronfenbrenner's (1979) ecological systems theory, and the use of capital and inequality measures, as suggested by Pridemore (2011).

The findings of the analysis presented here show that a conceptualisation of capital beyond the availability of economic resources was appropriate for this study, as to some extent, the distribution of other socially valued resources seemed to define the social space (Bourdieu 1987), and thus, accounted for differences in the perceived frequency of ASB in schools. In other words, the different models presented throughout this chapter confirmed the use of a multidimensional approach for the examination of the effects of capital and inequality, as various elements linked to each one of the forms of capital introduced by Bourdieu (1986) had an important effect on the perceived frequency of ASB. Indeed, the results of this chapter suggest that some elements associated to social and cultural of capital are better predictors

of the perceived frequency of ASB in schools than economic capital. Besides the average level of the students' economic capital, which was an important predictor for some groups for both students and principals, and the school economic capital, which decreased the perceived frequency of ASB of principals of Public schools and medium and large localities, the other variables linked to this capital and its inequality did not seem to be important.

Social capital was the only form of capital that had a consistent effect in the models that accounted for the joint effect of all the measures of capital and inequality and in the analysis by type of school and size of locality, always decreasing the perceived frequency of ASB of both students and principals. Thus, it can be argued that regardless of the individual or social background, good social connections and a positive coexistence in schools can help to reduce the perception of some problems and negative behaviours among students, including ASB. However, the effects of economic and cultural capital do not allow the establishment of any general conclusion, as they seem to depend largely on other contextual or environmental factors, some of which are not addressed by this research and could be beyond its scope.

Another important finding of this chapter resulted from the analysis of the effects of capital and inequality in different types of schools and localities, which confirmed Bronfenbrenner's (1979) theoretical approach for the integration of individual and environmental factors to explain human processes. These models showed that the effects of capital and inequality not only change according to the own characteristics of students and schools, but also there are some common elements in each type of school and in localities of different size that shape how economic, social, and cultural capital, and their inequality affect the perceived frequency of ASB. Without the use of Multiple Group Analysis, the results of this research would have been partial or even erroneous, especially in relation to the effects of economic and cultural capital. Hence, other similar studies that do not examine the effects of capital and inequality in different contexts could have misled researchers and policy makers, which could be a possible explanation for the failure of many policies at the national level.

For instance, the results of the first models of the students' perceived frequency of ASB showed that the average level of their economic capital in each school and GE(1) in the students cultural capital were among the best predictors of the perceived frequency of ASB (along with students social capital and its average per school). However, this proved to be the case only for some types of schools and localities, and even there the strength and

direction of the effect varied considerably; thus, a generalisation about the effects of these variables would had been erroneous. Similarly, the average level of the students' economic capital seemed to be an important predictor of the principals' perceived frequency of ASB in the first part of this chapter (together with the school social capital). Yet, when the effects of the forms of capital and their inequalities were analysed by type of school and size of locality, this variable was statistically significant only for some groups.

Although beyond the effect of social capital it is not possible to draw any conclusion that applies to all contexts, the results presented in this chapter can contribute to the literature about the effects of capital and inequality on ASB in the school context in different ways. The analysis presented here addresses other challenges that previous studies of ASB in schools (and other criminology studies) have faced, including the impact of inequalities over and beyond deprivation, and the exploration of inequalities due to very deprived and/or wealthy students. Thus, based on the results of the models presented in this chapter, it is possible to confirm, to some extent, the assumptions presented by Pridemore (2011) about the effects of inequality and deprivation, as after controlling for economic capital and its inequality, none of the GE measures was statistically significance. Nonetheless, this does not mean that inequality is not an important factor that could be linked to the perception of ASB and disorder because inequality does not only refer to differences within schools and is not only linked to disparities in economic resources.

As mentioned before, the average level of the students' economic capital and the school economic capital predicted changes in the perceived frequency of ASB in some types of schools and localities, indicating that differences in economic capital between schools are linked to important variations in the frequency with which ASB is perceived in the school context. However, a more in-depth analysis is needed to untangle this complex relationship because in some cases these factors predicted an increase in the perceived frequency of ASB. Thus, although this situation does not seem to apply for all types of schools and localities, it contradicts some studies that suggest that higher levels of deprivation are associated with ASB. Similarly, some disparities between schools in social and cultural capital seemed to be important predictors of the perceived frequency of ASB. Yet, some measures of cultural capital have a similar effect as the one observed in economic capital, where the school cultural capital and the average level of the students' cultural capital was associated with an

increase in the perceived frequency of ASB among principals and students of some types of schools and localities.

Although none of the inequality measures that examined disparities in economic capital within schools was associated with changes in the perceived frequency of ASB, some inequalities in the students social and cultural capital did. In this sense, this chapter contributes to the existing research about the effects of inequalities in the school context by analysing the link between GE measures that focus at different parts of the distribution and the perceived frequency of ASB. These measures were of special importance for this analysis not only because they helped to understand source of inequalities within schools, but also because some GE measures of the same form of capital that focused at different parts of the distribution had an effect that was considerably different in strength and direction. As discussed in chapters 4 and 6, one of the reasons for using GE for the construction of the inequality measures was because they allow the analysis of inequalities at different parts of the distribution, in contrast with other traditional measures that have been criticised for its emphasis on '*middle earners'*. This means that by using GE is possible to assess the *source* or *nature* of inequality, that is, whether it is the result of an increase in very deprived or very wealthy students, or due to an increase in the overall levels of inequality.

Although none of the measures was statistically significant in the analysis of the principals' perceived frequency of ASB, the results for the students showed that some measures of the students' social and cultural capital had an effect on their perception. In this sense, some GE measures of the students' cultural capital were amongst the best predictors of the students perceived frequency of ASB, particularly among students of Public and TV schools, and those in the smallest and largest localities (although they also affected Private schools). What is more, because the effects of some of the measures that focused at different parts of the distribution varied in relation to their direction, it can be argued that inequalities might not always have a negative effect. As also highlighted in chapter 9, some inequalities in the students' cultural capital, specifically due to an increase of students with low or high levels of this capital, were associated with a decrease in their perceived frequency of ASB. This effect was especially noticeable in TV schools and in small localities, where an overall increase in the students' cultural capital predicted higher levels of perceived frequency of ASB; however, inequalities at the top and bottom ends of the distribution were associated

with lower perception. Although more studies are necessary in order to understand this situation, this might be the result of a threshold effect, where inequalities have a negative impact on students but as the presence of students with very low or very high levels of cultural capital increases, those with higher levels capital compensate the lack of capital of the rest of students.

As mentioned before, all the findings presented here provide elements that can be used in the design of future policies to reduce the perception of ASB in schools. As highlighted in chapter 2, there are important differences in relation to the economic capital of the students and schools in Mexico that have been highlighted by scholars and government reports, thus politicians have focused mainly on tackling inequalities in this form of capital. However, as shown in this chapter, there are other important elements in the school context that might contribute to the increasing perception of ASB that have been overlooked by policy makers in the past, including positive social connections and *'culture*'. What is more, since some elements of social and cultural capital have proven to be better predictors of the perceived frequency of ASB in the school context, effective interventions that foster a good coexistence in the school context and provide an environment that addresses some inequalities of the students could be beneficial to reduce the problem of crime in the long term. Moreover, the results presented here suggest that recognising and focusing on the differences between schools can help to tackle in a better way these problems, as students and schools from different backgrounds have different characteristics and needs, and therefore, it is not possible to address the problems of all of them using the same intervention.

Chapter 11: Conclusions

11.1 Introduction

This thesis began with a quote from the Prussian Geographer Alexander von Humboldt (1811), who described Mexico as the country of inequality, where disparities in wealth and the lack of cohesion between different social groups represented an obstacle to progress. While many things have change since the publication of Humboldt's narratives, this thesis showed that an immense division continues to exist between social groups in Mexico, a situation that could be link to many other problems, including a higher perception of ASB. In this sense and as highlighted at the beginning of the thesis, the increasing levels of crime and ASB are one of the biggest concerns for Mexicans, and until today, public policies and interventions to contain these problems have proven ineffective. Thus, the findings from this research do not only contribute to the existing literature about the effects of the different forms of capital and their associated inequalities on the perception of ASB in schools, but also provide important elements that can be used in the development of policies to address some problems in the school context. Drawing together the results presented in all the previous chapters, the purpose of this chapter is to discuss in a more explicit way the main findings of this thesis, as well as other further implications of this study. This chapter also has the purpose of suggesting further research that could compliment and expand this thesis. Lastly, this chapter discusses some policy implications, and the original contribution and limitations of this study.

11.2 Summary of key findings

Due to the use of a more an inclusive or holistic approach where various elements and findings of previous studies were integrated in order to address the multidimensionality of capital and inequality and to assess their effects on the perceived frequency of ASB in schools, this thesis has been able to contribute in theoretical, methodological, and substantive terms. In theoretical terms, this thesis introduced a framework based mainly on the use of three elements: the use of economic and non-economic forms of capital, the analysis of both individual characteristics and environmental elements, and the exploration of the joint effect of capital and inequality. The forms of capital introduced by Bourdieu

(1986) provided the best possible framework for exploring the effect of economic and non-economic resources, as the results presented in chapter 8 showed important differences between the economic, social, and cultural capital of students and schools in Mexico. Yet, this theoretical approach proved to be especially important for this study because as shown in chapters 9 and 10, each form of capital had a different effect on the perceived frequency of ASB. Similarly, the results of this thesis proved that the use of an ecological approach based on some aspects of the ecological systems theory of Bronfenbrenner (1979) was essential for exploring the perception of ASB in schools, as the results showed that both the characteristics of students as well those from their environment (e.g. schools) were associated to this problem. The last important theoretical element that proved to be important in the context of this research was the analysis of both capital and inequality together, as the results confirmed that, as suggested by Pridemore (2011), the lack of one of these elements could produce partial and inconclusive results.

This thesis also provided a methodological framework for the analysis of the effects of capital and inequalities in schools, which can be used to investigate how these issues might affect other social processes and problems of students and schools. First, the use of SEM as the main statistical technique was appropriate for this research because it dealt with some theoretical and methodological challenges such as the construction and measurement of multidimensional concepts and the use of weights. Specifically, CFA demonstrated to be the best approach for the construction of measures of capital and the perceived frequency of ASB mainly because this technique allowed the construction of measures based on theoretical concepts (e.g. the forms of capital of Bourdieu) while preserving individuality of the observed variables (Aaberge and Brandolini 2014). Additionally, SEM allowed the inclusion of other statistical techniques that proved to be relevant in the context of this study, including multilevel modelling and multiple group analysis. In relation to the calculation of the inequality measures, the use of GE was particularly helpful as it made possible the analysis of the effects of inequalities at different parts of the distribution, that is, those that result from de presence of very deprived or wealthy students, or when differences are similar between all the students of the same school.

In substantive terms, this thesis showed that the only form of capital that seems to have a consistent effect among students and principals of all background is social capital. Therefore,

it can be established that a good social environment and positive social connections in the school context always decreases the perceived frequency of ASB. Besides the effect of social capital it is not possible to draw any conclusion that applies to all students and all schools, and thus, it can also be concluded that it is necessary to consider the own particularities of each environment in order to assess the effects of economic and cultural capital and their associated inequalities. The results of this research suggested that some variables linked to economic and cultural capital and their associated inequalities were related to changes in the perceived frequency of ASB but only for some types of schools and localities. Although some inequalities in the students' capital had an important effect in the perceived frequency of ASB of the students, inequality in the students' cultural capital had a particularly interesting effect among students of Public and TV schools and those who live in small localities, and the presence of very wealthy or deprived students decreased their perceived frequency of ASB. While more studies are necessary in order to understand this effect, the results suggest that, despite the traditional association of the word inequality with negative outcomes, in some contexts inequality could be positive.

Although all of these findings contribute to the existing literature about the effects of capital and inequality on the perception of ASB in schools and provide very valuable information for the design of more appropriate public interventions, this thesis makes an additional contribution to research by exploring the effects of capital and inequality in schools in a country outside the so-called '*Global north'.* As it was discussed throughout this thesis, some of the leading studies about the effects of capital and inequality on ASB have been carried out in countries in which social conditions are considerably different to those seen in other regions in the world, including Latin America (and Mexico). Hence, some studies have established general conclusions that do not seem to apply to all contexts. In this sense, from the results of this research can also be concluded that although some people and social groups might share some common characteristics, in order to understand and deal with social processes and problems it is necessary to recognise the own particularities of each environment.

11.2.1 Untangling the relationship between the forms of capital, their associated inequality, and the perceived frequency of ASB in schools

As highlighted in chapter 3, most research about the effects of capital and inequalities on ASB in schools has been based on either unidimensional measures linked to economic resources or they have focused only on those that fall into specific categories (e.g. poverty), producing partial or inconclusive results that have shaped our understanding of these problems. Hence, the results of this thesis provide enough evidence to support the idea that a multidimensional approach is the best alternative to explore some social processes in the school context, as various elements linked to both economic and non-economic forms of capital predicted important changes in the perceived frequency of ASB.

Overall, the results show that social capital is the only form of capital that seems to have a consistent effect on the perceived frequency of ASB, decreasing the perception of students and principals from all the types of schools and localities. Interestingly, this thesis showed that some elements that are associated with negative behaviours from teachers increased the students perceived frequency of ASB, confirming previous studies about the negative outcomes of punitive, coercive, and/or violent school environments (Blasco 2003; Caudillo and Torche 2014; Del Tronco Panganelli and Madrigal Ramirez 2013; Gomez Nashiki 2005; Thapa et al. 2013; Unnever, Colvin, and Cullen 2004). The effect of social capital is of great importance especially in a country like Mexico (due to the great vulnerabilities of some social groups) as social capital does not depend on economic background or social class (see chapter 8), and thus, everyone can benefit from this form of capital.

Although some elements linked to economic and cultural capital had an important effect on the perceived frequency of ASB, the effect was not consistent across all types of schools and localities. What is more, the effect that economic capital has on the perceived frequency of ASB in schools seems to be ambiguous, not only because this seems to depend on other environmental characteristics, but also because the effect of economic capital in some contexts contradicts some existing research. Previous studies have indicated a relationship between poverty and deprivation, especially in urban areas (Sampson, Morenoff, and Gannon-Rowley 2002; Obberwittler 2005, 2007; Sampson 2009; Thapa et al. 2013; Weatherburn and Lind 2001; Wikstrom and Loeber 2000). However, only the school economic capital had an important effect on principals of medium and large localities and

none of the measures associated with economic capital had an important effect on students of medium and large localities. Drawing together all the findings presented in chapters 9 and 10, it can be concluded that at least in Mexico, it is not possible to establish any general conclusion about the effect of economic and cultural capital.

The results of this research showed that similar to the effects of capital, it is not possible to establish any general conclusion about the relationship between inequalities and the perceived frequency of ASB in schools, as these seem to depend mainly on the characteristics of the environment. However, this thesis provided some important findings that contribute to the existing literature about the perception of ASB in schools in methodological and substantial terms. First, this thesis examined the effects of inequalities in social and cultural capital, finding that disparities in these two forms of capital are better in explaining differences in the perceived frequency of ASB of students than economic capital. This thesis also found that the measures based on Maasoumi's (1986, 1999) two-step approach were the best alternative to the analysis of the effects of inequalities in the school context, as it allowed the analysis of inequalities based on multidimensional measures of capital, but especially because he suggested the use of Generalised Entropy. GE was very important in this analysis because it helped to assess the effect of inequalities due to disparities at different parts of the distribution, that is, those that resulted from the presence of very wealthy or poor students, or when the differences were similar between them. In this sense, one of the most interesting results is that despite the traditional negative connotation that comes with the word inequality, in some contexts the differences that exist between students might have a positive effect. This situation was observed particularly among students of TV schools and small localities, where disparities in cultural capital due to the presence of very deprived or wealthy students, were linked to a decrease in the perceived frequency of ASB.

Additionally, this research demonstrated the importance of using adequate models that, as suggested by Pridemore (2011), control for both capital and inequality. Although as expected (as it was indicated by Pridemore), the inequality that exist in the students' economic capital was not associated with the perceived frequency of ASB after controlling for economic capital, some inequalities in the students' social and cultural capital were associated with the perceived frequency of ASB, but only among students of some schools

types and localities. Although most inequality measures were not linked to the perceived frequency of ASB, this does not mean that inequality is not an important element to tackle this problem. As shown in chapter 8, these measures showed only the inequalities *within* schools, that is, the differences that exist in economic, social, and cultural capital between the students that attend the same schools. However, some of other elements such as the average level in the students' capital and the schools' capital were associated with important changes in the perceived frequency of ASB of both students and principals, which means that reducing some inequalities *between* schools is necessary to reduce the perception of ASB.

11.2.2 Other key findings of this research

Although the main purpose of this thesis was to explore the relationship between capital, inequality, and the perceived frequency of ASB in Mexican schools, the findings of this research helped to explore other important issues that can be used in further studies about schools and in the development of public policies. As mentioned before, one of the main findings of this research is the importance that contextual factors have in explaining social problems, including the effect of capital and inequalities on the perception of ASB. Throughout the analysis of this thesis, contextual elements played a key role, first because they helped to shape the theoretical and methodological background of this study, and then because the results of Multiple Group Analysis showed that the effect of capital and inequality varied between different schools types and localities (with the exception of social capital). Therefore, the results of this thesis confirm that the use of an ecological approach based on some aspects of Bronfenbrenner's (1979) ecological systems theory was appropriate for this research, as it was discovered that both the individual characteristics of the students and those of their environments are associated with the perceived frequency of ASB in schools. Although the analysis showed that most of the variation in the students' perceived frequency of ASB was explained by differences between students (i.e. individual characteristics), schools seem to play a very important role because in all cases there was an important school effect, that is, an important part of the variation was explained by differences between schools.

Indeed, the results of this research showed that besides the effect of the students and principals' perception of social connections in the school environment (i.e. social capital),

some elements associated with the school context (especially the average level of the students' capital) were better predictors of the perceived frequency of ASB than the capital of individuals. Therefore, the findings of this thesis show the necessity of addressing some problems at the school level in order to reduce the perception of ASB in schools. What is more, this thesis also showed the importance of considering other contextual elements in order to establish more accurate conclusions about the effects of capital and inequalities, which in turn can be used for the design of better public interventions. In this sense, it was shown that Mexico has some unique characteristics not shared with other countries, especially with those where the leading research in the area has been carried out, including higher levels of poverty, inequality, and crime. Additionally, as shown in the analysis by type of school and size of locality, there are important differences within Mexico that affect the way in which capital and inequality affect the school context (besides the effect of social capital), and thus, it is necessary to recognise all of these elements before drawing any conclusion.

For instance, the results of the analyses presented in chapter 8 showed remarkable differences in economic and cultural capital between students and school of different backgrounds (in relation to their type of school, size of locality, and state). Students and principals of Private schools and those from the largest localities had the highest levels of economic and cultural capital; and the lowest levels of these forms of capital were observed among students of TV and Community schools and from the smallest places. Similarly, students and schools from the most deprived states, which as mentioned in chapter 2 are mainly located in the south of the country, had the lowest levels of economic and cultural capital, while the wealthiest states, located in the central and northern regions, had the highest levels of these forms of capital. Again, despite the need for more research in the area, these findings are very interesting and relevant for any future policy intervention, especially because they show that more investment is necessary in order to tackle some of the differences that exist in the school context in relation to their economic and cultural capital. Although social capital did not seem to be strongly associated to any environmental element, the results suggest the need to foster better social connections in some settings, as a better social environment could help to address some other issues (including the perception of ASB and disorder in the school environment).

As mentioned in the previous section, this study has explored two forms of inequalities that have not been studied before: inequality in social and cultural capital. Therefore, this thesis showed for the first time the inequalities in economic and non-economic forms of capital that exist in Mexican schools. Overall, the analysis of the measures of inequality presented in chapter 8 showed that capital is not equally distributed among students and schools in Mexico, especially economic and cultural capital, and there are important disparities within different types of schools, localities, and states. As expected, some of the most deprived groups in the country also had the highest levels of inequality in economic and cultural capital, as the results showed that Community and TV schools and the smallest communities were more unequal than the other types of schools and localities. In all cases, the results show higher levels of inequality due to the presence of very deprived students. In contrast, the lowest levels of inequality in these two forms of capital were observed in those groups that are considerably wealthier, that is, Private schools and the largest localities.

Lastly, this thesis also found marked differences between the regions of the country, where the highest levels of inequality in economic and cultural capital were observed in the poorest states, while the wealthier central and northern regions of the country had the lowest levels. The higher levels of inequality in economic and cultural capital among some groups show the necessity of investing more in schools of these areas, as some of them seem to have been left behind, and although most inequalities within schools were not associated with the perceived frequency of ASB, these could affect students in ways not explored in this thesis. Inequality in social capital was considerably lower than the one for the other two forms of capital, and although there were some differences between students and schools, and different types of schools, localities and states, these were very small and do not allow the establishment of any conclusion. These findings are in line with the analysis of social capital, showing that a positive coexistence is not associated with the background of individuals.

11.3 Policy implications

Perhaps the first finding of this thesis resulted from the literature review, where it was discovered that most research about the effects of capital and inequality in Mexico lack empirical evidence, and thus, public policies are based on false assumptions or partial notions about the effects of these issues. The lack of empirical research to guide policies

could be one of the reasons why most public interventions to contain crime and ASB in Mexico have been ineffective. Thus, this thesis provides important and interesting findings that can be used for the development of empirically based public policies and interventions that could help to reduce some problems linked to inequality and the perception of ASB in the school context, and possibly, to tackle in the long term some risk factors associated with crime. Therefore, this section presents four main policy implications and recommendations based on the findings of this study, which are mainly associated with tackling inequalities in each form of capital, and reducing the social divisions that exist between social groups in Mexico, including those between different types of school, localities, and states.

The first issue that future public policies must address is the immense disparities in economic capital that exist within and between schools in Mexico. As discovered in chapter 8, there are striking differences in the economic capital of students and schools between different types of schools, localities of different size, and the states of the country. Although some of the elements highlighted by the findings of this research are somehow hard to address, especially those related to the individual levels of capital, others are much easier to tackle, especially those linked to problems at the school level. As explored in chapter 10, some elements linked to economic capital at the school level seem to be associated with the perceived frequency of ASB, and therefore, in order to reduce this problem, it might be necessary to launch public policies and interventions to tackle deprivation and inequality especially amongst the poorest and most deprived schools. This should include, among others, a higher investment in infrastructure and resources in Public schools and in medium and large localities, as the results of this thesis suggested that higher levels of school economic capital was associated with a decrease on the perceived frequency of ASB among principals of this groups.

Although there are not big differences in social capital between different types of schools, localities, and states, this form of capital was one of the best predictors of the perceived frequency of ASB, and therefore, fostering better social connections in schools is an extremely relevant factor that must be addressed to reduce the perception of ASB. As discussed in previous sections, various variables linked to social capital at the individual and school level were associated with an important decrease in the perceived frequency of ASB of both students and principals. Hence, despite being overlooked by policy makers in the

past, public policies at the school level should aim at improving the social environment not only between students, but also between students and teachers. In this sense and as discussed in chapter 3, because punitive and harsh discipline are common in Mexico since they have been traditionally associated with better educational outcomes, new initiatives to dismiss these ideas from the past should be introduced. This is mainly because as discovered in chapter 8 and 9, these behaviours are negatively associated with social capital and the perceived frequency of ASB, and therefore, they might reduce the positive effect that this form of capital might have.

In relation to cultural capital, it is important to mention that similar to previous studies about ASB in the school context, this concept has not been deeply explored by policy makers in Mexico, and thus, very little has been done to tackle the disparities that exist in this form of capital. The results of this thesis suggest that there are important differences in the cultural capital between different types of schools, localities of various sizes, and regions in Mexico. In this sense, the highest levels of inequality were observed in TV schools and small localities, especially due to the presence of students with very low levels of cultural capital. Although it might be extremely hard to address some of these problems, including the lack of parental intervention (but not impossible), more investment in these schools to acquire cultural goods including books and computers can help to reduce substantially the inequalities in cultural capital. What is more, because the inequality measures in the students' cultural capital were linked to higher perceived frequency of ASB in schools, the implementation of policies to increase access to cultural assets at home and especially to improve the perception about education (and thus the expectations) could be extremely useful to reduce the perception of ASB.

It is important to note that similar to the discussion about the effects of poverty and inequality highlighted in chapter 4, where some scholars have tried to generalise their findings without contemplating contextual elements, policy makers in Mexico seldom take into account the differences that exist between and within social groups. Although diversity and inclusion are important elements of many political and legal frameworks, and are even included as key development strategies in the Constitution (DOF 2016a), as noted in the analyses presented in chapters 2 and 8, there are still immense disparities not only between social classes in Mexico, but also across different regions and even ethnic groups. For

instance, as discovered in chapter 8, TV schools (which are located mainly in isolated rural areas) and Community schools (attended mainly by indigenous students) have considerably less economic and cultural capital than any other type of schools. Thus, it is important to invest more in these places; and although it was shown that on average, students and principals of these schools perceive less ASB compared to other schools, the high levels of deprivation and inequality represent an immense obstacle for the development of those students who attend these schools.

Additionally, because capital and inequality have a completely different effect on the perceived frequency of ASB of students and principals from different types of schools and localities (apart from social capital, which has a consistent effect across all groups), any public intervention must be based on the particular characteristics of each setting. This seems to be especially important in Public, Technical and Private schools, and in medium and large localities, where policies aimed at tackling inequalities within and between schools could reduce substantially the high levels of perceived ASB. Finally, throughout this thesis it was shown that Mexico is an extremely divided country where the lack of interaction between students that belong to different social classes has hindered the sense of community and solidarity in some areas, which could explain why medium and large localities seem to have higher levels of perceived frequency of ASB. Therefore, probably the main implication of this thesis for future policies and interventions would be to tackle this division in order to reduce not only the perception of ASB, or even perhaps of crime in the long term, but also to improve the living conditions of those from the most deprived areas.

11.4 Original contributions

Based on all the findings of this thesis and the discussion presented in this chapter, it can be established that this research contributes to the existing literature about the link between capital, inequalities, and the perception of ASB in schools mainly in three different ways. First, this research contributes to the literature about ASB in schools mainly because studies about ASB in Mexican schools are scarce, but also because it provided an empirical analysis outside the so-called '*Global north*', where the leading research about the effects of capital and inequalities on ASB has been carried out. In this sense, as noted in previous sections, some of the findings of this research might be exclusive of the Mexican context, but others

can complement and contribute to the existing research in the area, especially those linked to the methods and the effects of inequality over and above deprivation. Additionally, because this thesis analysed various contexts within Mexico (i.e. different types of schools and localities), the findings of this research can contribute to the existing debate about the effects of capital and inequalities by suggesting that context matters, and thus, generalisations should be avoided in most cases. In terms of the findings that seem to be unique of the Mexican context, this thesis explored the effect of capital and inequalities among students and school from all backgrounds, and not only those from urban or the most deprived areas, showing that capital and inequalities can affect everyone regardless of social class, or location.

In terms of the theoretical contributions of this research, this thesis provided a framework that incorporated various elements of different theories, including the analysis of the effects of economic and non-economic forms of capital, the use of individual and environmental elements, and measures of capital and inequality together. The forms of capital of Bourdieu (1986) provided an appropriate framework for this study, as they contemplated different aspects of the quality of life of individual that included economic and non-economic forms of capital, but particularly because many other studies in the past highlighted the link between some elements associated with social and cultural capital and ASB in schools. It is important to note that other studies in the past have explored the link between economic, social or cultural capital and ASB in schools; however, there is a lack of studies using of all of them in a holistic or more inclusive approach. The results of the analysis using all the forms of capital showed that some non-economic resources, such as positive social connections and a good coexistence (i.e. social capital), are better predictors of the perceived frequency of ASB than economic capital. Thus, this thesis can contribute for the designing of policies in Mexico, supporting the idea of investing not only in infrastructure and resources in schools (i.e. economic capital), but also in other non-economic elements such as social capital. The exploration of inequality in social and cultural capital in schools are also original contributions of this research, especially because it was found that some of these measures had an important effect in the perceived frequency of ASB in some schools.

Similarly, this thesis used an ecological approach based on some aspects of Bronfenbrenner's (1979) ecological systems theory, which supported the analysis of the

effects of individual and school-level factors, but also explored the differences between various contexts (localities and states). Although this approach is very popular in other studies of schools and crime, there is a lack of studies about the effect of capital and inequalities in schools that have used an ecological approach, especially that consider the analysis of inequalities *within* and *between* schools and the differences in school type and localities. Lastly, this thesis provided an analysis of the effects of capital and inequality using measures of both elements, which as highlighted by Pridemore (2011), has not been contemplated by many studies of crime in the past (and even less studies in the school context have controlled for both). Because the effect of economic and cultural capital changed when controlling for their inequalities, and vice versa, this research provides enough evidence for the use both elements when assessing their effects.

The final original contribution of this thesis is linked to the methods used for the calculation and analysis of the measures of capital, inequality, and the perceived frequency of ASB. Although SEM has increasingly been used in some sociological and criminological studies, the use of this method in analyses of ASB in the school context in not common. What is more, despite being pointed out by some scholars as the best method for the construction and evaluation of multidimensional measures of wellbeing (Aaberge and Brandolini 2014), most studies about the effects of capital and inequality still rely on the use of proxies or measures based on an arbitrary establishment of weights. Furthermore, the use of Generalised Entropy measures to assess the effects of inequality represents an innovation in studies linked to the school context, especially because they allowed the analysis of inequalities at different parts of the distribution. Measures that explore inequalities at different parts of the distribution resulted extremely important for this research, as they helped to discover that among some students, inequalities in social and cultural capital might not have the expected negative effect as they were linked with a reduction of the perceived frequency of ASB.

11.5 Limitations and further research

This thesis presents some limitations, some of which can be addressed in future studies about the effects of capital and inequality on ASB in schools. These limitations can be grouped mainly into two categories: those that results from the data of this research, and those linked to the interpretation of the findings. In relation to the data, it is important to

note that the survey that was employed throughout this research was not developed to fit the purpose of this study, but to assess the national education system in Mexico and how some factors could affect the attainment of students. As discussed in chapter 5, probably one of the biggest limitations of PLANEA (INEE 2016) was linked to the variables that were used for the creation of the dependent variable, which assess the perceived frequency of ASB of students and principals, but not the actual individual behaviours. Therefore, the results of this thesis show only how the different levels of capital and the inequalities that exist in the school context are linked to how students and principals perceive this problem. While these perceptions could be linked to the actual levels of ASB (Budd and Sims 2001; Flatley 2017; Laufer and Harel 2003; Upson 2006; Wood 2004), the results of this thesis should be interpreted carefully and a direct link between capital, inequality, and ASB should be avoided. Additionally, PLANEA does not contain enough information about the economic, social, and cultural background of principals of secondary schools, and therefore, it is not possible to explore how their own characteristics influenced their perceived frequency of ASB.

Similarly, although the use of CFA allowed the construction of latent constructs or unobserved variables such as the capital measures based on observed variables, PLANEA did not include some important elements that would have been useful in the context of this research, including household income and other monetary variables at the school level. Although as discussed in chapter 4, income has been widely criticised in analysis of the effects of capital and inequality, it would have been interesting to compare the results of monetary and non-monetary measures. Due to the lack of data over time, this study was restricted to a cross-sectional analysis. In this sense, it is important to note that there are many interesting surveys in Mexico covering a great variety of topics linked to crime and ASB, however, there is a lack of consistent data that can be linked over time, including longitudinal studies. Therefore, future studies in Mexico should aim to collect data at different points of time and/or link surveys to other sources of information that allow the explorations of the effects of linked to capital, inequality, and ASB over time. Yet, a possible way to continue this analysis could involve exploring the same variables in places were such data is available in order to compare the results and establish more conclusions about the effects of these issues over time.

Lastly, one of the main limitations of this thesis results from the findings of the final models, especially in relation to the effect of some inequality measures (which were linked to a reduction of the perceived frequency of ASB). Yet, the concepts of inequality in social and cultural capital have not been explored by the literature in the past, and therefore, it results very hard to understand and explain why there seems to be a positive effect in situations of inequality. As suggested in chapters 9 and 10, this could suggest a threshold effect, where inequality has a traditional negative effect, yet, the increase in the presence of very deprived or wealthy students can have a positive effect where students with higher levels of capital complement those with lower levels. However, more studies, especially of qualitative nature, are needed in order to confirm this assumption and to explore how these variables affect students of other contexts, which could make possible the understanding of these situations. Similarly, in some contexts economic capital had an effect in the opposite direction as the one suggested by some studies in the past, especially in small areas, and thus, it is necessary to investigate this situation in more depth.

11.6 Summing up

This thesis explored the relationship between economic, social, and cultural capital, their associated inequality, and the perceived frequency of ASB of students and principals of secondary schools in Mexico, using secondary analysis of the National Plan for the Evaluation of Learning (INEE 2016). This research contributes to the existing literature by presenting new evidence about the effects of capital and inequalities in schools outside the so-called '*global north'*, and by providing a holistic or inclusive approach that incorporated various theoretical and methodological elements of previous studies. The theoretical framework was based on three approaches: the forms of capital introduced by Bourdieu (1986), allowing the analysis of capital and inequality using economic and non-economic resources; an ecological approach that explored individual and environmental characteristics based on Bronfenbrenner's (1979) ecological systems theory, and the analysis of capital and inequality together as suggested by Pridemore (2011). The methodological framework was mainly based on three elements: the construction of measures of economic, social, and cultural capital based on the results of CFA, the calculation of inequality in the students' capital using GE, and the analysis of the relationship between

capital, inequality, and the perceived frequency of ASB using SEM, multilevel modelling, and Multiple Group Analysis.

Overall, the results of this thesis show that social capital is the only form of capital that has a consistent effect across all Mexican schools, since it was associated with a decrease in the perceived frequency of ASB in students and principals of all backgrounds. Although economic and cultural capital also had an important effect on the perceived frequency of ASB, these two forms of capital seem to affect only students and principals of some types of schools and localities. The results also suggest that some inequalities *within* schools linked to the students' social and cultural capital are good predictors of the perceived frequency of ASB of students; yet, inequalities in the students' capital do not seem to affect the principals' perception of ASB. Nonetheless, some inequalities *between* schools are associated with the perceived frequency of ASB of both students and principals, as some elements such as the average level of the students' capital and the school capital predicted changes in this perception. One of the most interesting findings of this research resulted from the effects of the inequality measures of the students' social and cultural capital, where some inequalities at the top and bottom of the distribution predicted an important decrease in their perceived frequency of ASB. Although more studies are needed in order to untangle these effects, it was argued that the reduction of the perceived frequency of ASB could be linked to a threshold effect. This means that an increase in the overall levels of inequality within schools has a negative effect on students, yet, an increase in the presence of very deprived of wealthy students could have a positive effect, in which the necessities of the most deprived students could be complemented by those in more privileged positions.

This research presents some limitations, especially in relation to the variables used for the calculation of the perceived frequency of ASB mainly because they did not allow the analysis of individual behaviours. However, the results of this thesis provide a notion about the effects that capital and inequality have on the overall levels of perceived ASB and disorder in schools. Thus, the findings of this thesis have important implications for future policies aimed at reducing the problem of ASB in schools, and even in the long-term, they could be used to tackle some of the risk factors associated with crime. As mentioned before, the only finding that could apply to all contexts is linked to social capital, suggesting that future policies should aim at fostering good social connections and a positive environment in the

school context, not only between students, but also with their teachers. Due to the striking differences seen between different school types and localities, the findings of this thesis also suggest that interventions should be driven mainly by the characteristics and elements of each particular setting, as the needs and problems of students and schools vary enormously in relation to their own context. Although economic and cultural capital and their inequality were not linked to the perceived frequency of ASB in all the types of schools and localities, policies in the future must address the disparities between and within schools, as for some groups these elements predicted an important reduction in this perception.

Lastly, the analysis presented in this thesis showed the immense disparities in relation to the capital of the students and their schools, which represents an obstacle for their development and future opportunities. Therefore, policy makers must address these issues, as most public policies have proven ineffective not only to contain crime and ASB but also to address other problems associated with the social division and inequalities in Mexico. More than 200 years the Prussian Geographer Alexander von Humboldt (2015) noted this acute division, which still represents one of the biggest problems for Mexico, and it seems that will not change until it becomes the main priority for the government. In this sense, Humboldt wrote:

> *"A government aware of the true interests of humanity, will be able to diffuse information and instruction, and by extinguishing gradually the monstrous inequality of rights and fortunes, will succeed in augmenting the physical prosperity of the people; but it will find immense difficulties to overcome before rendering the inhabitants sociable, and teaching them to consider themselves mutually in the light of fellow citizens".*

Appendices

Appendix 1: Ethics form

Research Ethics and Integrity
Supplementary form A: Level Two Approval

School of Law
University of Edinburgh

1 DETAILS OF RESEARCH AND INVESTIGATOR/S	
Name and position	Luis Fernando Pantoja Nuñez (PhD student)
Title of research	Another side of segregation: Reproduction of Reproduction of violence and criminal behaviour through schools
Proposed start date	01/09/2016
Duration of the project	3 years
Co-investigator/s (if any)	
Project Summary (including details of methodology, not more than 150 words)	
I confirm I have read the School of Law guidance on research ethics and integrity	YES [■] NO
If you are a student, please provide the following additional information:	
Email address	S1628691@sms.ed.ac.uk
Degree programme and year	PhD Law
Course to which this research relates	PhD thesis
Name of supervisor	Professor Susan McVie
2 RESEARCH PARTICIPANTS	
Does the research involve participants specifically recruited for this research project?	YES NO [■]
How many participants will be involved in the study?	0
What criteria will be used in deciding on inclusion/exclusion of participants?	n/a
How will the sample be recruited?	n/a
Are any of the participants/ data subjects likely to be:	
• Under 16 years of age	YES [■] NO
• Children in the care of a Local Authority	YES NO [■]
• Known to have additional support needs	YES NO [■]
• Physically or mentally ill	YES NO [■]
• Vulnerable in other ways (e.g. in some form of compulsory detention or surveillance)	YES NO [■]
• Unlikely to be proficient in English	YES [■] NO
• In a client or professional relationship with the researchers	YES NO [■]

• In a student/teacher relationship with the researchers • In any other dependent relationship with the researchers • Have difficulty in reading and/or comprehending any printed material distributed as part of the study	YES NO YES NO YES NO
Will participants receive any financial or other material benefits because of participation? If YES what benefits will be offered to participants and why?	YES NO
3 POTENTIAL RISKS TO PARTICIPANTS/ DATA SUBJECTS	
Could the research induce any psychological stress or discomfort in participants? If YES, what measures will be taken to address this?	YES NO
Could the research lead to disclosure or observation of illegal behaviours or activities? If YES, what procedures will be followed?	YES NO I will look at some antisocial conducts within schools but the main aim of the research will not be to disclose this information but link it to inequalities. None individual information will be disclose nor specific activities. Moreover, the kind of conducts and activities are related mainly to problems in school such as fights and damage to school furniture. All the surveys and data are publicly available online and they have been used in the past.
Is there any purpose to which the research findings could be put that could adversely affect participants/ data subjects? If YES, what steps will be taken to protect them?	YES NO
Will the true purpose of the research be concealed from participants/ data subjects? If YES, what will be concealed and why?	YES NO
If using secondary data, is the reuse of data compatible with what subjects were originally told about the use of their data? (e.g., were they told it would be destroyed at the end of the original study?) If NO please explain. Is further consent required?	YES NO

If using secondary data, is it likely that people or places could be identified from the data? If YES, are further measures necessary to protect data subjects?	YES NO
Could this research adversely affect participants/ data subjects in any other way? If YES, outline the risks. What steps will be taken to protect them?	YES NO
4 POTENTIAL RISKS TO RESEARCHERS	
At any stage in the research, could researchers' safety be compromised? (E.g., will it involve travel to high-risk areas, dangerous activities, or risky individuals or groups?) If YES, what procedures have been put in place to deal with potential problems?	YES NO
To the best of your knowledge, could any institutional or personal conflicts of interest arise from this research? If YES, please explain.	YES NO
Do any of those named above need training to enable them to properly conduct the proposed research safely and in accordance with ethical principles? If YES, what training is needed?	YES NO
Does the research require a risk assessment evaluation (e.g. if your safety may be compromised, or if your travel or other insurance requires it)? *IF YES, please contact the RKO Manager.*	YES NO
Do the researchers named above need to be cleared through the Disclosure/Enhanced Disclosure procedures? *IF YES, please contact the RKO Manager.*	YES NO
5 INFORMATION AND CONSENT	
What information will be provided to participants prior to their consent? (e.g. information leaflet, briefing session)	N/A
Can you confirm that participants will be informed of their right to withdraw from the study at any time and for any or no reason at all? If NO, please explain	YES NO

Will it be necessary for participants to take part in the study without their knowledge and consent? If YES, please explain	YES NO
Will written consent be obtained from all participants/ data subjects? If NO, explain why.	YES NO
If research involves participants from any of the vulnerable groups listed in section 2, what arrangements will be made to ensure informed consent?	
6 DATA PROTECTION	
Will any part of the research involve audio, film or video recording of individuals? If YES, please describe	YES NO ■
How will the confidentiality of data, including the identity of participants, be ensured?	This has already been done. The surveys are publicly available and do not contain any identity information.
Who will have access to the data? (e.g. researcher only, members of research team, supervisor)	Researcher although it is publicly available online.
How and where will the data be stored and in what format?	In my personal server but it is available online. The format is .sav
What security arrangements have you put in place for the data?	None, it is available online
Please confirm that you will retain the data for the length of time required by the University's Data Management policies: • For staff: 10 years after the end of the project • For students: for the duration of the project	YES ■
How will the data be disposed of when it is no longer required?	N/A
7 DATA USAGE	
How will the results of the research be used?	To write my PhD thesis.
What feedback of findings, if any, will be given to participants?	None
Is any information likely to be passed on to external companies or organisations in the course of the research? If YES, please describe	YES NO ■
Does your project require copyright for use of images, photography, audio or video services, or third party release?	YES NO ■

If YES, see generic legal agreements here [link]	
8 COLLABORATIVE WORKING	
Does your research involve collaboration with other academic/ non-academic partners, and/or employing others such as guides or translators?	YES NO ■
If YES: i) What steps will be taken to ensure that all individuals adhere to UoE research ethics and integrity standards? ii) Please confirm the ownership of intellectual ideas and research outcomes, as well as the specific conditions in which these might be shared, will be agreed upon by all collaborators (e.g. this might include agreement of authorship, recognition of other contributions, acknowledgement of sponsors.)	YES
9 CONFIRMATION	
I confirm that I am aware that I can seek advice from the Research Ethics and Integrity Committee at any stage of the research.	YES ■ NO
I confirm that, should my research change so that the responses to these questions are no longer applicable, I will seek further ethical approval.	YES ■ NO
Signed:	
Date: 29/03/2016	

Research Ethics and Integrity: Approval form

TO BE COMPLETED BY ALL RESEARCHERS

1 DETAILS OF RESEARCH AND INVESTIGATOR/S	
Name and position	Luis Fernando Pantoja Nuñez (PhD student)
Title of research	Another side of segregation: Reproduction of Reproduction of violence and criminal behaviour through schools
Proposed start date	01/09/2016
Duration of the project	3 years
Co-investigator/s (if any)	
Project Summary (including details of methodology, not more than 150 words)	This research will try to look at the relationship between inequalities (economic, social and cultural) and antisocial behaviour/delinquency in schools in Mexico. More in detail I plan to examine what kind of delinquency problems and antisocial behaviour exist in Mexican schools and how inequality is linked to those problems. I plan to use secondary data analysis from already existing surveys made by the Mexican government to develop a multilevel model that explains the relationship at the individual and school level. More in specific, I intend to use a survey called PLANEA, used to measure attainment in secondary school students, which contains a section on perception of school problems. Probably I will also use other data (all of it is publicly available through the site (www.INEGI.gob.mx) to compare regions.
If you are a student, please provide the following additional information:	
Email address	S1628691@sms.ed.ac.uk
Degree programme and year	PhD Law
Course to which this research relates	PHD thesis
Name of supervisor	Professor Susan McVie

2 FUNDING		
Is funding being sought for this project?	YES	NO ■
If YES please give details.		
Does the project require approval of any other institution or ethics committee?	YES	NO ■
If YES please give details.		

3 LEVEL OF APPROVAL SOUGHT		
Does your project involve ANY research with human participants (e.g. interviews, observations, etc.?)	YES	NO ■
Does your project involve secondary data analysis which may have ethical implications in the use or presentation of data?	YES	NO ■
To the best of your knowledge, could any institutional or personal conflicts of interest arise from this research?	YES	NO ■
If you have answered YES to any of these questions please complete supplementary form A		

(Level Two Approval) and submit with this form.	
Does your research concern individuals or groups which may be construed as terrorist or extremist?	YES NO ■
If you have answered YES to this question please complete supplementary form B (Prevent Duty) and submit with this form.	
4 CONFIRMATION	
I confirm I have read the School of Law guidance on research ethics and integrity	YES ■ NO
Signed:	
Date: 29/03/2017	

Appendix 2: ANOVA results: counting approach and CFA of students' economic capital.

	STUDENT ECONOMIC CAPITAL (NORMALISED)			
	Count		CFA	
	R-squared	p-value	R-squared	p-value
TYPE OF SCHOOL	0.248	0.000	0.284	0.000
SIZE OF LOCALITY	0.218	0.000	0.252	0.000

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

N= 144,057 students and 5,529 schools

Appendix 3: ANOVA results: counting approach and CFA of students' economic capital.

	SCHOOL ECONOMIC CAPITAL (NORMALISED)			
	COUNT		CFI	
	R-squared	p-value	R-squared	p-value
TYPE OF SCHOOL	0.404	0.000	0.455	0.000
SIZE OF LOCALITY	0.252	0.000	0.253	0.000

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

N= 144,057 students and 5,529 schools

Appendix 4: Inequality measures of students and principals economic capital

	STUDENT ECONOMIC CAPITAL (NORMALISED)		**SCHOOL ECONOMIC CAPITAL (NORMALISED)**	
	Count	CFA	Count	CFA
GINI	0.164	0.171	0.131	0.137
GENERALISED ENTROPY				
GE(0)	0.062	0.059	0.033	0.035
GE(1)	0.050	0.050	0.029	0.032
GE(2)	0.044	0.045	0.027	0.030

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

N= 144,057 students and 5,529 schools

Appendix 5: Relationship between students' perceived frequency of ASB and Economic Capital by type of school and size of locality

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	0.391**	0.403**	0.053**	0.837**	0.039*	0.397**	0.583**
S.E	(0.004)	(0.043)	(0.021)	(0.108)	(0.020)	(0.059)	(0.088)
STUDENT LEVEL							
Student Economic Capital	0.038**	0.038**	0.041**	-0.047**	0.047**	0.044**	*0.014**
S.E	(0.006)	(0.007)	(0.007)	(0.016)	(0.006)	(0.006)	*(0.006)*
SCHOOL LEVEL							
Ineq. Students Eco. Capital							
GE(0)	*0.014*	*-0.065*	-0.041**	**0.150****	-0.055**	*-0.116*	**-0.287***
S.E	(0.062)	(0.049)	(0.015)	(0.062)	(0.015)	(0.097)	(0.125)
GE(1)	*0.618*	*1.899*	**0.829****	*0.034*	**1.076****	*3.368*	**10.090****
S.E	(2.212)	(1.601)	(0.284)	(0.127)	(0.287)	(2.324)	(3.787)
GE(2)	*-0.911*	*-2.210*	**-0.376***	*-0.006*	*-0.506*	*-3.558*	**-10.514****
S.E	(2.319)	(1.624)	(0.191)	(0.079)	(0.196)	(2.517)	(4.264)
Mean Student Eco. Capital	*0.087*	*0.040*	**0.412****	**-0.322****	**0.454****	*0.102*	*-0.120*
S.E	(0.049)	(0.050)	(0.032)	(0.119)	(0.030)	(0.061)	(0.095)
School Economic Capital	-0.053*	*-0.012*	*-0.007*	*-0.097*	*0.020*	-0.097**	-0.082**
S.E.	(0.024)	(0.025)	(0.019)	(0.051)	(0.018)	(0.031)	(0.022)
Between school variance	0.004	0.004	0.008	0.007	0.009	0.005	0.006
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within school variance	0.039	0.039	0.035	0.036	0.035	0.040	0.034
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.093	0.093	0.186	0.163	0.205	0.111	0.150
Log likelihood	26142.08	26142.08	26142.08	26142.08	25984.61	25984.61	25984.61
-2*log-likelihood	-52284.2	-52284.2	-52284.2	-52284.2	-51969.2	-51969.2	-51969.2

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

*N= 144,057. ** p<0.01, * p<0.05*

Appendix 6: Relationship between principals' perceived frequency of ASB and Economic Capital by type of school and size of locality

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	0.317**	*0.167*	*-0.028*	0.701**	*-0.014*	0.638**	1.352**
S.E	(0.105)	(0.106)	(0.038)	(0.241)	(0.035)	(0.103)	(0.200)
School Eco. Capital	**-0.130***	-0.044	0.016	**-0.264****	-0.008	**-0.278****	***-0.462****
S.E.	(0.063)	(0.075)	(0.035)	(0.094)	(0.034)	(0.069)	*(0.054)*
Mean Student Eco. Capital	**0.376****	**0.459****	**0.508****	**-0.194****	**0.510****	-0.008*	***-0.642****
S.E	(0.114)	(0.130)	(0.056)	(0.250)	(0.052)	(0.120)	*(0.216)*
Ineq. Students Eco. Capital GE(0)	*-0.041*	*-0.008*	-0.056*	0.043	-0.053*	*-0.297*	**-0.739***
S.E	(0.169)	(0.138)	(0.029)	(0.152)	(0.028)	(0.238)	(0.289)
GE(1)	*3.961*	*-4.059*	**1.311****	*0.338*	**1.295***	*4.493*	**22.272****
S.E	(5.424)	(4.215)	(0.575)	(1.053)	(0.555)	(5.400)	(8.881)
GE(2)	*-4.018*	*5.122*	*-0.675*	*0.212*	*-0.677*	*-3.830*	**-23.269***
S.E	(5.639)	(4.234)	(0.421)	(0.923)	(0.408)	(5.535)	(10.061)
R-squared	0.036**	0.042*	0.068**	0.026*	0.073**	0.044**	0.284**

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

*N= 5,529. ** p<0.01, * p<0.05*

Appendix 7: Relationship between students' perceived frequency of ASB and Social Capital by type of school and size of locality

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	0.930**	0.822**	0.858**	0.968**	0.911**	0.997**	1.002**
S.E	(0.036)	(0.043)	(0.037)	(0.057)	(0.035)	(0.047)	(0.038)
STUDENT LEVEL							
Student Social Capital	**-0.412****	**-0.388****	**-0.360****	**-0.452****	**0.347****	**-0.415****	**-0.424***
S.E	(0.008)	(0.009)	(0.009)	(0.012)	(0.008)	(0.009)	(0.007)
SCHOOL LEVEL							
Ineq. Students Soc. Capital							
GE(0)	*-0.004*	**0.115****	*-0.008*	*-0.056*	**0.434****	*-0.058*	-0.086*
S.E	(0.074)	(0.038)	(0.016)	(0.089)	(0.088)	(0.054)	(0.041)
GE(1)	*-0.193*	*0.130*	*-1.478*	*-1.370*	*-1.748*	*0.073*	*-0.302*
S.E	(0.109)	(0.135)	(2.268)	(2.603)	(1.935)	(0.208)	(0.353)
GE(2)	*-0.172*	*0.078*	*2.646*	*1.540*	*2.252*	*0.059*	*0.089*
S.E	(0.091)	(0.115)	(2.379)	(2.828)	(2.252)	(0.128)	(0.131)
Mean Student Soc. Capital	**-0.429****	**-0.352****	**-0.388****	**-0.465****	**-0.489****	**-0.549****	**-0.514****
S.E	(0.057)	(0.068)	(0.051)	(0.083)	(0.049)	(0.072)	(0.060)
School Social Capital	*0.001*	0.046*	**-0.135****	-0.063*	*-0.113*	*-0.016*	-0.055**
S.E.	(0.017)	(0.022)	(0.016)	(0.028)	(0.016)	(0.018)	(0.017)
Between school variance	0.003	0.003	0.007	0.006	0.008	0.004	0.004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within school variance	0.036	0.036	0.033	0.032	0.033	0.037	0.035
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.077	0.077	0.175	0.158	0.195	0.098	0.103
Log likelihood	31406.17	31406.17	31406.17	31406.17	31223.35	31223.35	31223.35
-2*log-likelihood	-62812.3	-62812.3	-62812.3	-62812.3	-62446.7	-62446.7	-62446.7

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

*N= 144,057. ** p<0.01, * p<0.05*

Appendix 8: Relationship between principals' perceived frequency of ASB and Social Capital by type of school and size of locality.

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	1.288**	1.243**	0.747**	0.843**	0.831**	1.025**	1.286**
S.E	(0.100)	(0.128)	(0.053)	(0.097)	(0.051)	(0.117)	(0.095)
School Social Capital	**-0.580****	**-0.532****	**-0.617****	**-0.655****	**-0.581****	**-0.611****	**-0.838****
S.E.	(0.074)	(0.060)	(0.028)	(0.050)	(0.028)	(0.052)	(0.042)
Mean Student Soc. Capital	**-0.704****	**-0.640****	-0.102	-0.105	**-0.235****	-0.319	**-0.418****
S.E	(0.154)	(0.196)	(0.073)	(0.141)	(0.070)	(0.170)	(0.144)
Ineq. Students Soc. Capital GE(0)	*-0.286*	*0.033*	*-0.202*	*-0.044*	*-0.142*	*-0.297*	*-0.125*
S.E	*(0.378)*	*(0.354)*	*(0.483)*	*(0.150)*	*(0.607)*	*(0.265)*	*(0.111)*
GE(1)	*0.529*	*-0.518*	*-0.594*	*0.505*	*-0.197*	*0.944*	*-0.927*
S.E	*(0.765)*	*(0.964)*	*(3.924)*	*(4.319)*	*(3.751)*	*(1.242)*	*(1.474)*
GE(2)	*0.461*	*-0.282*	*2.931*	*-0.738*	*1.557*	*1.160*	*0.509*
S.E	*(0.735)*	*(0.926)*	*(3.911)*	*(4.640)*	*(3.648)*	*(1.156)*	*(1.348)*
R-squared	0.195	0.152	0.271	0.275	0.235	0.193	0.290

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

*N= 5,529. ** p<0.01, * p<0.05*

Appendix 9: Relationship between students' perceived frequency of ASB and Cultural Capital by type of school and size of locality.

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	0.249**	0.396**	0.015	0.420**	*-0.037*	0.334**	0.406**
S.E	(0.034)	(0.039)	(0.025)	(0.099)	(0.023)	(0.038)	(0.031)
STUDENT LEVEL							
Student Cultural Capital	-0.055**	0.059**	0.065**	*-0.013*	0.060**	0.056**	0.036**
S.E	(0.008)	(0.009)	(0.009)	(0.013)	(0.008)	(0.009)	(0.007)
SCHOOL LEVEL							
Ineq. Students Cul. Capital							
GE(0)	**-4.103****	**-0.330****	**-2.037****	*-2.127*	**-2.099****	**-0.464***	*-3.140*
S.E	(1.415)	(0.120)	(0.549)	(4.919)	(0.576)	(0.207)	(2.095)
GE(1)	**13.925****	**4.540***	**8.383****	*5.621*	**8.279****	**5.731****	*9.002*
S.E	(4.571)	(2.294)	(1.811)	(19.092)	(1.845)	(2.121)	(7.232)
GE(2)	**-8.500****	**-4.580***	**-5.446****	*-0.585*	**-5.178****	**-4.982***	*-3.813*
S.E	(3.181)	(2.251)	(1.270)	(15.111)	(1.275)	(2.156)	(5.230)
Mean Student Cul. Capital	**0.206****	*0.025*	**0.490****	-0.062**	**0.612****	*-0.060*	-0.078*
S.E	(0.050)	(0.062)	(0.050)	(0.116)	(0.046)	(0.053)	(0.038)
School Cultural Capital	*0.019*	*0.014*	0.068**	*0.002*	*0.079*	*0.043*	*0.018*
S.E.	(0.013)	(0.016)	(0.016)	(0.023)	(0.015)	(0.015)	(0.013)
Between school variance	0.004	0.004	0.009	0.007	0.009	0.006	0.005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Within school variance	0.039	0.039	0.035	0.036	0.035	0.040	0.039
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ICC	0.093	0.093	0.205	0.163	0.205	0.130	0.114
Log likelihood	26102.81	26102.81	26102.81	26102.81	25962.84	25962.84	25962.84
-2*log-likelihood	-52205.6	-52205.6	-52205.6	-52205.6	-51925.7	-51925.7	-51925.7

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

*N= 144,057. ** p<0.01, * p<0.05*

Appendix 10: Relationship between principals' perceived frequency of ASB and Cultural Capital by type of school and size of locality.

	Type of school				Size of locality		
Model:	Public	Technic	TV	Priv.	Small	Med.	Large
Constant	0.376**	0.383**	*-0.065*	0.459**	-0.091**	0.669**	1.164**
S.E	(0.085)	(0.101)	(0.043)	(0.137)	(0.038)	(0.083)	(0.076)
School Cultural Capital	*0.027*	*0.001*	0.098**	*0.003*	**0.104****	*0.074*	*-0.025*
S.E.	(0.035)	(0.044)	(0.030)	(0.040)	(0.028)	(0.041)	(0.030)
Mean Student Cult. Capital	*0.195*	*0.230*	**0.632****	*-0.237*	**0.687****	**-0.446****	**-1.070****
S.E	(0.122	(0.152)	(0.086)	(0.169)	(0.074)	(0.118)	(0.091)
Ineq. Students Cul. Capital GE(0)	*-0.686*	*-0.870*	*-1.178*	*-2.054*	*-0.506*	*-1.096*	*-2.623*
S.E	(4.620)	(0.990)	(1.266)	(1.616)	(1.218)	(1.037)	(2.307)
GE(1)	*7.564*	*7.837*	*3.885*	*1.554*	*1.387*	*7.629*	*1.868*
S.E	(14.850)	(5.933)	(3.884)	(2.096)	(3.748)	(5.750)	(4.317)
GE(2)	*-6.683*	*-7.803*	*-1.580*	*0.715*	*0.176*	*-6.312*	*0.738*
S.E	(10.316)	(5.562)	(2.618)	(1.262)	(2.530)	(5.383)	(2.245)
R-squared	0.007	0.019	0.048	0.009	0.068	0.045	0.255

Source: Plan Nacional para las Evaluaciones de los Aprendizajes (PLANEA, 2016).

*N= 5,529. ** p<0.01, * p<0.05*

Bibliography

Aaberge, R., and A. Brandolini. 2014. 'Multidimensional Poverty and Inequality'. *Discussion Papers, Statistics Norway* 792: 124.

Abdi, H., and L. Williams. 2010. *Encyclopedia of Research Design*. Edited by Neil Salkind. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc. https://doi.org/10.4135/9781412961288.

Aldridge, S., Halpern, D., and Fitzpatrick, S. 2002. Social capital: a discussion paper. London, England: Performance and Innovation Unit.

Almaguer, A., D. F. Lozano, and G. R. Peña. 2014. 'The Educational Sector as Solver of High Levels of Violence in Mexico'. *Daena: International Journal of Good Conscience* 9 (2): 122–44.

Anthias, Floya. 2001. 'The Material and the Symbolic in Theorizing Social Stratification: Issues of Gender, Ethnicity and Class'. *British Journal of Sociology* 52 (3): 367–90. https://doi.org/10.1080/00071310120071106.

Atkinson, A. 1970. 'On the Measurement of Inequality'. *Journal of Economic Theory* 2 (3): 244–63. https://doi.org/10.1016/0022-0531(70)90039-6.

Atkinson, A. B. 2015. *Inequality: What Can Be Done?* Cambridge, Massachusetts: Harvard University Press.

Atkinson, A. B., and F. Bourguignon. 1982. 'The Comparison of Multi-Dimensioned Distributions of Economic Status'. *The Review of Economic Studies* 49 (2): 183. https://doi.org/10.2307/2297269.

Ayala, L. 2010. 'Income Poverty and Multidimensional Deprivation: Lessons from Cross-Regional Analysis'. *Review of Income and Wealth* 57 (1): 40–60.

Bailey, K. D. 1985. 'Entropy Measures of Inequality'. *Sociological Inquiry* 55 (2): 200–211. https://doi.org/10.1111/j.1475-682X.1985.tb00859.x.

Bartee, R, and M Brown. 2007. *School Matters : Why African American Students Need Multiple Forms of Capital*. Counterpoints 312. New York: Peter Lang.

Bellu, L., and P. Liberati. 2006. 'Describing Income Inequality. Theil Index and Entropy Class Indexes'. *EasyPol, Analytical Tools* 51: 20.

Berube, R. 2008. 'Richard Rorty and the Politics of Modesty'. *The Common Review* 6 (3): 25–33.

Binelli, C., . Loveless, and S. Whitefield. 2015. 'What Is Social Inequality and Why Does It Matter? Evidence from Central and Eastern Europe'. *World Development* 70: 239–48. https://doi.org/10.1016/j.worlddev.2015.02.007.

Birnbaum, A. S., L. Lytle, P. Hannan, D. Murray, C. Perry, and J. Foster. 2003. 'School Functioning and Violent Behavior among Young Adolescents: A Contextual Analysis'. *Health Education Research* 18 (3): 389–403. https://doi.org/10.1093/her/cyf036.

Blasco, M. 2003. '¿Los Maestros Deben Ser Como Segundos Padres? Escuela Secundaria, Afectividad y Pobreza En México'. *Revista Mexicana de Investigación Educativa* 8 (19): 789–820.

Bollen, K. A. 1989. *Structural Equations with Latent Variables*. Hoboken, NJ, USA: John Wiley & Sons, Inc. https://doi.org/10.1002/9781118619179.

Booth, C. 1889. 'Booth's Maps of London Poverty : East and West 1889'. Maps Descriptive of London Poverty. London: Old House Books.

Booth, J. A., A. Farrell, and S. P. Varano. 2008. 'Social Control, Serious Delinquency, and Risky Behavior: A Gendered Analysis'. *Crime & Delinquency* 54 (3): 423–56. https://doi.org/10.1177/0011128707306121.

Bottoms, A. 2012. 'Developing Socio-Spatial Criminology'. In *The Oxford Handbook of Criminology*, Fifth Edition, 450–89. Oxford, United Kingdom: Oxford University Press.

Bottoms, A., and P. Wiles. 2003. 'Explanations of Crime and Place'. In *Criminological Perspectives, Essential Readings*, Second Edition, 110–26. London: Sage Publications.

Bourdieu, P. 1986. 'The Forms of Capital'. In *Handbook of Theory and Research for the Sociology of Education*, by J Richardson, 46–58. New York: Greenwood.

———. 1987. 'What Makes a Social Class? On The Theoretical and Practical Existence Of Groups'. *Berkeley Journal of Sociology* 32: 1–17.

Brezina, T., A. R. Piquero, and P. Mazerolle. 2001. 'Student Anger and Aggressive Behavior in School: An Initial Test of Agnew's Macro-Level Strain Theory'. *Journal of Research in Crime and Delinquency* 38 (4): 362–86. https://doi.org/10.1177/0022427801038004002.

Bronfenbrenner, Urie. 1979. *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, Mass: Harvard University Press.

———. 1994. 'Ecological Models of Human Development'. In *International Encyclopedia of Education*, edited by T. Husen and T. N. Postlethwaite, 2nd ed., 2:1643–47. Oxford: Elsevier.

Budd, T., and L. Sims. 2001. 'Antisocial Behaviour and Disorder: Findings from the 2000 British Crime Survey'. Home Office Research Findings 145. London, United Kingdom: Home Office.

Bureau, U. S. Census. 2015. 'American FactFinder - Results'. 2015. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_1YR_B03001&prodType=table.

Burton, D. 2000. *Research Training for Social Scientists*. 6 Bonhill Street, London England EC2A 4PU United Kingdom: SAGE Publications Ltd. https://doi.org/10.4135/9780857028051.

Calhoun, C., E. LiPuma, and M. Postone. 1993. 'Introduction'. In *Bourdieu. Critical Perspectives*, 1–13. Cambridge: Polity Press.

Camp, W. 2001. 'Formulating and Evaluating Theoretical Frameworks for Career and Technical Education Research.' *Journal of Vocational Education Research* 26 (1): 4–25.

Cannan, E. 1921. 'Early History of the Term Capital'. *The Quarterly Journal of Economics* 35 (3): 469–81.

Caudillo, M. L., and F. Torche. 2014. 'Exposure to Local Homicides and Early Educational Achievement in Mexico'. *Sociology of Education* 87 (2): 89–105.

Ceriani, L, and P. Verme. 2012. 'The Origins of the Gini Index: Extracts from Variabilità e Mutabilità (1912) by Corrado Gini'. *The Journal of Economic Inequality* 10 (3): 421–43. https://doi.org/10.1007/s10888-011-9188-x.

Chan, W. Y., M. A. Hollingsworth, D. L. Espelage, and K. J. Mitchell. 2016. 'Preventing Violence in Context: The Importance of Culture for Implementing Systemic Change.' *Psychology of Violence* 6 (1): 22–26. https://doi.org/10.1037/vio0000021.

CIDAC. 2016. 'Justicia Para Adolescentes En Mexico'. Mexico: Centro de Investigacion para el Desarrollo A.C.

Cisneros, J. L. 2007. 'Cultura, Juventud y Delincuencia En El Estado de México'. *Papeles de Poblacion* 52: 255–80.

Claridge, T., 2004. Social Capital and Natural Resource Management: An important role for social capital? Unpublished Thesis, University of Queensland, Brisbane, Australia.

Coleman, J. 1988. 'Social Capital in the Creation of Human Capital'. *Americal Journal of Sociology* 94: 95–120.

Coleman, J. S. 1990. Foundations of social theory. Cambridge: Harvard University Press.

CONAPO. 2015. 'Estimaciones y Proyecciones de La Población Por Entidad Federativa'. MEXICO: Consejo Nacional de Población.

———. 2016. 'Infografia Poblacion Indigena'. Mexico: Consejo Nacional de Población.

Conceicao, P., and P. Ferreira. 2000. 'The Young Person's Guide to the Theil Index: Suggesting Intuitive Interpretations and Exploring Analytical Applications'. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.228703.

Conde, S. 2011. *Entre La Ternura y El Espanto. Formar Ciudadanos En Contextos Violentos.* Mexico: Ediciones Cal y Arena.

———. 2014. 'La Violencia y La Cultura de La Calle Entran a La Escuela: Acciones y Reacciones'. *Sinectica: Revista Electronica de Educacion* 42.

CONEVAL. 2017. 'Pobreza En México'. Medicion de La Pobreza. 2017. http://www.coneval.org.mx/Medicion/Paginas/PobrezaInicio.aspx.

Contreras, D., G. Elacqua, M. Martinez, and Á. Miranda. 2015. 'Income Inequality or Performance Gap? A Multilevel Study of School Violence in 52 Countries'. *Journal of Adolescent Health* 57 (5): 545–52. https://doi.org/10.1016/j.jadohealth.2015.08.002.

Corona, N., H. Urdal, and K. Chaitanya. 2013. 'Fear and Loitering in Mexico: The Significance of Age Structure, Education, and Youth Unemployment for Explaining Sub-National Variation in Violent Youth Crime'. In *Essays on the Economics of Crime in Mexico*, by N. Corona. Heidelberg: Heidelberg University.

Creswell, J. W. 2014. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th ed. Thousand Oaks: SAGE Publications.

Dedrick, R. F., John M. Ferron, Melinda R. Hess, Kristine Y. Hogarty, Jeffrey D. Kromrey, Thomas R. Lang, John D. Niles, and Reginald S. Lee. 2009. 'Multilevel Modeling: A Review of Methodological Issues and Applications'. *Review of Educational Research* 79 (1): 69–102. https://doi.org/10.3102/0034654308325581.

Del Tronco Panganelli, J., and A. Madrigal Ramirez. 2013. 'School Violence in Mexico: Exploring Its Dimensions and Consequences'. *Journal of Social Work Unam*, no. 4: 9–26.

DOF. 2008. 'Instituto Nacional de Lenguas Indigenas'. Diario Oficial de la Federacion.

———. 2016a. *Constitución Política de Los Estados Unidos Mexicanos*. *Last Reform 27/01/2016*. http://www.diputados.gob.mx/LeyesBiblio/htm/1.htm.

———. 2016b. *Ley Nacional Del Sistema Integral de Justicia Penal Para Adolescentes*. Vol. 16-06–2016.

Dolfsma, W., and C. Dannreuther. 2003. 'Subjects and boundaries: Contesting social capital-based policies.' *Journal of Economic Issues* 37: 405-413.

Donlan, A. 2003. 'The Relationship between Type of High School Attended and Student Behavior'. PhD Dissertation, Washington, D.C.: The George Washington University.

Donnellan, M. B., and R. E. Lucas. 2013. *Secondary Data Analysis*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199934898.013.0028.

Dornbusch, S. M., K. G. Erickson, J. Laird, and C. A. Wong. 2001. 'The Relation of Family and School Attachment to Adolescent Deviance in Diverse Groups and Communities'. *Journal of Adolescent Research* 16 (4): 396–422. https://doi.org/10.1177/0743558401164006.

Eccles, J. S., and R. W. Roeser. 2011. 'Schools as Developmental Contexts During Adolescence'. *Journal of Research on Adolescence* 21 (1): 225–41. https://doi.org/10.1111/j.1532-7795.2010.00725.x.

Elgar, F. J., K. E. Pickett, William Pickett, W. Craig, M.l Molcho, K. Hurrelmann, and M. Lenzi. 2013. 'School Bullying, Homicide and Income Inequality: A Cross-National Pooled Time Series Analysis'. *International Journal of Public Health* 58 (2): 237–45. https://doi.org/10.1007/s00038-012-0380-y.

Fernandez, L. M. 1994. *Instituciones Educativas*. Buenos Aires: Paidos.

Flatley, J. 2017. 'Public perceptions of crime in England and Wales: year ending March 2016'. Office for National Statistics. London, United Kingdom.

Flora, D. B., and Patrick J. Curran. 2004. 'An Empirical Evaluation of Alternative Methods of Estimation for Confirmatory Factor Analysis With Ordinal Data.' *Psychological Methods* 9 (4): 466–91. https://doi.org/10.1037/1082-989X.9.4.466.

Foley, M. W., and B. Edwards. 1997. 'Escape from politics? Social theory and the social capital debate.' *American Behavioral Scientist* 40: 550.

Foster, H., and J. Brooks-Gunn. 2013. 'Neighborhood, Family and Individual Influences on School Physical Victimization'. *Journal of Youth and Adolescence* 42 (10): 1596–1610. https://doi.org/10.1007/s10964-012-9890-4.

Frazier, M. S. 2011. 'Antisocial Behavior'. In *Encyclopedia of Child Behavior and Development*, edited by S. Goldstein and J. A. Naglieri, 118–20. Boston, MA: Springer US. https://doi.org/10.1007/978-0-387-79061-9_159.

Fukuyama, F. 1997. 'Social capital and the modern capitalist economy: Creating a high trust workplace.' *Stern Business Magazine* 4.

Furlan, A. 2012. 'Inseguridad y Violencia En La Educación. Problemas y Alternativas'. *Perfiles Educativos* 34 (Special): 118–28.

Garson, G. D.. 2013. 'Fundamentals of Hierarchical Linear and Multilevel Modeling'. In *Hierarchical Linear Modeling: Guide and Applications*, by G. Garson, 3–26. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc. https://doi.org/10.4135/9781483384450.n1.

Giddens, A. 1984. *The Constitution of Society*. Cambridge: Polity.

Gill, J., and A. Womack. 2013. 'The Multilevel Model Framework'. In *The SAGE Handbook of Multilevel Modeling*, by Marc Scott, Jeffrey Simonoff, and Brian Marx, 3–20. 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom: SAGE Publications Ltd. https://doi.org/10.4135/9781446247600.n1.

Goddard, R.. 2001. 'Collective Efficacy: A Neglected Construct in the Study of Schools and Student Achievement'. *Journal of Educational Psychology* 93 (3): 467–76.

Goldthorpe, J. H. 2007. '"Cultural Capital": Some Critical Observations'. *Sociologica*, no. 2: 0–0. https://doi.org/10.2383/24755.

Gomez Nashiki, A. 2005. 'Violencia e Institución Educativa'. *Revista Mexicana de Investigación Educativa* 10 (26): 693–718.

Gottfredson, D. C. 2000. *Schools and Delinquency*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511720246.

Gottfredson, D. C., and Stephanie M. DiPietro. 2011. 'School Size, Social Capital, and Student Victimization'. *Sociology of Education* 84 (1): 69–89. https://doi.org/10.1177/0038040710392718.

Gottfredson, G. D., D. Gottfredson, A. Payne, and N. Gottfredson. 2005. 'School Climate Predictors of School Disorder: Results from a National Study of Delinquency Prevention in Schools'. *Journal of Research in Crime and Delinquency* 42 (4): 412–44. https://doi.org/10.1177/0022427804271931.

Greselin, F., and R. Zitikis. 2018. 'From the Classical Gini Index of Income Inequality to a New Zenga-Type Relative Measure of Risk: A Modeller's Perspective'. *Econometrics* 6 (1): 4. https://doi.org/10.3390/econometrics6010004.

Hanifan, L. J. 1916. 'The Rural School Community Center.' *The Annals of the American Academy of Political and Social Science* 67: 130–38.

Harris, K. M., G. J. Duncan, and J. Boisjoly. 2002. 'Evaluating the Role of "Nothing to Lose" Attitudes on Risky Behavior in Adolescence'. *Social Forces* 80 (3): 1005–39. https://doi.org/10.1353/sof.2002.0008.

Hashimzade, N. 2017. *A Dictionary of Economics*. New York, NY: Oxford University Press.

Hernandez Esquivel, G.. 2015. 'Desigualdad Extrema En Mexico: Concentracion Del Poder Economico y Politico'. Iguales. Mexico: OXFAM.

Herrera Lasso, L.. 2014. '"Factores Que Propician La Violencia y La Inseguridad: Apuntes Para Una Estrategia Integral de Seguridad Pública En México'. El Colegio de Mexico.

Hinshaw, S. P., and S. S. Lee. 2003. 'Conduct and Oppositional Defiant Disorders'. In *Child Psychopathology*, edited by E. J. Mash and R. A. Barkley, 2nd edition, 144–98. New York: Guilford Press.

Hodgson, G. M. 2014. 'What Is Capital? Economists and Sociologists Have Changed Its Meaning: Should It Be Changed Back?' *Cambridge Journal of Economics* 38 (5): 1063–86. https://doi.org/10.1093/cje/beu013.

Hoffmann, J. P., and Mikaela J. Dufur. 2008. 'Family and School Capital Effects on Delinquency: Substitutes or Complements?' *Sociological Perspectives* 51 (1): 29–62. https://doi.org/10.1525/sop.2008.51.1.29.

Hong, J. S., and M. K. Eamon. 2012. 'Students' Perceptions of Unsafe Schools: An Ecological Systems Analysis'. *Journal of Child and Family Studies* 21 (3): 428–38. https://doi.org/10.1007/s10826-011-9494-8.

Hong, J. S., and D. L. Espelage. 2012. 'A Review of Research on Bullying and Peer Victimization in School: An Ecological System Analysis'. *Aggression and Violent Behavior* 17 (4): 311–22. https://doi.org/10.1016/j.avb.2012.03.003.

Humboldt, A. V. 2015. *Ensayo Politico Sobre El Reino de La Nueva España*. Translated by J. Black. Vol. 1. Cambridge: Cambridge University Press.

Hyman, H. H. 1972. *Secondary Analysis of Sample Surveys: Principles, Procedures, and Potentialities*. New York: Wiley.

IMJUVE. 2011. 'Encuesta Nacional de Juventud'. Instituto Mexicano de la Juventud. https://www.gob.mx/imjuve/documentos/base-de-datos-de-la-encuesta-nacional-de-juventud-2012.

INEE. 2012. '¿CUÁNTOS ALUMNOS DE UNA GENERACIÓN ESCOLAR TERMINAN OPORTUNAMENTE CADA NIVEL EDUCATIVO?' Mexico: Instituto Nacional para la Evaluacion de la Educacion.

———. 2016. 'Bases de Datos PLANEA'. Plan Nacional Para La Evaluacion de Los Aprendizajes. 2016. http://www.inee.edu.mx/index.php/planea/bases-de-datos-planea.

INEGI. 2014. 'Encuesta Nacional de Ingresos y Gastos de Los Hogares'.

———. 2015a. 'Encuesta de Cohesión Social Para La Prevención de La Violencia y La Delincuencia'. http://www.beta.inegi.org.mx/proyectos/enchogares/especiales/ecopred/2014/.

———. 2015b. 'Encuesta Intercensal 2015'.

———. 2015c. 'Encuesta Nacional Sobre Disponibilidad y Uso de Tecnologías de La Información En Los Hogares (ENDUTIH)'.

———. 2016a. 'Censo Nacional de Procuración de Justicia Estatal 2016'. SNIEG. 2016. http://www.beta.inegi.org.mx/proyectos/censosgobierno/estatal/cnpje/2016/.

———. 2016b. 'Encuesta Nacional de Victimización y Percepción Sobre Seguridad Pública 2016'. ENVIPE. 2016. http://www.beta.inegi.org.mx/proyectos/enchogares/regulares/envipe/2016/.

———. 2017. 'Datos. Proyectos Estadisticos/microdatos'. Mexico: Instituto Nacional de Estadística y Geografía. http://www.beta.inegi.org.mx/datos/?init=2.

———. 2018. 'Defunciones Por Homicidios'. Mortalidad. Conjunto de Datos. 2018. http://www.inegi.org.mx/sistemas/olap/proyectos/bd/continuas/mortalidad/defuncioneshom.asp?s=est#.

Jæger, M. M., and R. Breen. 2016. 'A Dynamic Model of Cultural Reproduction'. *American Journal of Sociology* 121 (4): 1079–1115. https://doi.org/10.1086/684012.

Jimenez, R. 2005. 'La Delincuencia Juvenil: Fenómeno de La Sociedad Actual'. *Papeles de Poblacion* 11 (43): 215–61.

Justino, P. 2005. 'Empirical Applications of Multidimensional Inequality Analysis'. *PRUS Working Papers*, Poverty Research Unit at Sussex, University of Sussex., 23: 45.

Kaplan, D. 2009. 'Multilevel Structural Equation Modeling'. In *Structural Equation Modeling (2nd Ed.): Foundations and Extensions*, 133–54. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc. https://doi.org/10.4135/9781452226576.n7.

Kaplow, L. 2005. 'Why Measure Inequality?' *The Journal of Economic Inequality* 3 (1): 65–79. https://doi.org/10.1007/s10888-004-7947-7.

Kerlinger, F. N. 1979. *Behavioral Research: A Conceptual Approach*. New York: Holt, Rinehart, and Winston.

Kingston, P. W. 2001. 'The Unfulfilled Promise of Cultural Capital Theory'. *Sociology of Education* 74: 88–99. https://doi.org/10.2307/2673255.

Kirk, D. 2009. 'Unraveling the Contextual Effects on Student Suspension and Juvenile Arrest: The Independent and Interdependent Influences of School, Neighborhood, and Family Social Controls'. *Criminology* 47 (2): 479–520.

Kolm, S-C. 1977. 'Multidimensional Egalitarianisms'. *The Quarterly Journal of Economics* 91 (1): 1. https://doi.org/10.2307/1883135.

Krishnakumar, J, and A. L. Nagar. 2008. 'On Exact Statistical Properties of Multidimensional Indices Based on Principal Components, Factor Analysis, MIMIC and Structural Equation Models'. *Social Indicators Research* 86 (3): 481–96. https://doi.org/10.1007/s11205-007-9181-8.

Lamont, M., and A. Lareau. 1988. 'Cultural Capital: Allusions, Gaps and Glissandos in Recent Theoretical Developments'. *Sociological Theory* 6 (2): 153–68. https://doi.org/10.2307/202113.

Laufer, A.l, and Y. Harel. 2003. 'The Role of Family, Peers and School Perceptions in Predicting Involvement in Youth Violence'. *International Journal of Adolescent Medicine and Health* 15 (3). https://doi.org/10.1515/IJAMH.2003.15.3.235.

Lebaron, F. 2006. 'Bourdieu, Pierre'. In *International Encyclopedia of Economic Sociology*, edited by J. Beckert and M. Zafirovski, 30–32. New York: Routledge.

Lewis-Beck, M., A. Bryman, and Tim Futing Liao. 2004. 'The SAGE Encyclopedia of Social Science Research Methods'. In *The SAGE Encyclopedia of Social Science Research Methods*. 2455 Teller Road, Thousand Oaks California 91320 United States of America: Sage Publications, Inc. https://doi.org/10.4135/9781412950589.n1083.

Loader, I., and R. Sparks. 2012. 'Situating Criminology: On the Production and Consumption of Knowledge about Crime and Justice'. In *The Oxford Handbook of Criminology*, Fifth Edition, 3–38. Oxford, United Kingdom: Oxford University Press.

Lopez, S. 2008. 'Diagnóstico Sociodemográfico de La Megalópolis Del Centro Del País'. Pachuca, Mexico: Universidad Autonoma del Estado de Hidalgo.

Lorenz, M. O. 1905. 'Methods of Measuring the Concentration of Wealth'. *Publications of the American Statistical Association* 9 (70): 209. https://doi.org/10.2307/2276207.

Lugo, M. A. 2005. 'Comparing Multidimensional Indices of Inequality: Methods and Application'. *Society for the Study of Economic Inequality*, Working Papers, , no. 14: 29.

Maasoumi, E. 1986. 'The Measurement and Decomposition of Multi-Dimensional Inequality'. *Econometrica* 54 (4): 991–97.

———. 1999. 'Multidimensioned Approaches to Welfare Analysis'. In *Handbook of Income Inequality Measurement*, edited by Jacques Silber, 437–84. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-011-4413-1_16.

Marlier, E., and A. B. Atkinson. 2010. 'Indicators of Poverty and Social Exclusion in a Global Context: Indicators of Poverty and Social Exclusion in a Global Context'. *Journal of*

Policy Analysis and Management 29 (2): 285–304. https://doi.org/10.1002/pam.20492.

Mayer, R. 2001. 'Antisocial Behavior: Its Causes and Prevention Within Our Schools'. *Education and Treatment of Children*, Special Issue: Schools, 24 (4): 414–29.

Meehan, B. T., J. N. Hughes, and Timothy A. Cavell. 2003. 'Teacher-Student Relationships as Compensatory Resources for Aggressive Children'. *Child Development* 74 (4): 1145–57. https://doi.org/10.1111/1467-8624.00598.

Merton, R. 1938. 'Social Structure and Anomie'. *American Sociological Review* 3 (5): 672–82.

Merton, R. K. 1968. *Social Theory and Social Structure*. Enlarged ed., [Nachdr.]. New York, NY: Free Press.

Moreno-Brid, J. C., and A. Krozer. 2014. 'Inequality in Mexico'. *World Economics Association Newsletter* 4 (5): 4–7.

Muthen, B. 1998. 'Mplus Technical Appendices'. Los Angeles, CA.: Muthen & Muthen.

———. 2002. 'BEYOND SEM: GENERAL LATENT VARIABLE MODELING'. *Behaviormetrika* 29 (1): 81–117. https://doi.org/10.2333/bhmk.29.81.

Muthen, L., and B. Muthen. 2011. *Mplus* (version 6.1). Los Angeles, CA: Muthén & Muthén.

Navarro, Z.. 2006. 'In Search of a Cultural Interpretation of Power: The Contribution of Pierre Bourdieu'. *IDS Bulletin* 37 (6): 11–22. https://doi.org/10.1111/j.1759-5436.2006.tb00319.x.

Ningaye, P., T. Y. Alexi, and T. F. Virginie. 2013. 'Multi-Poverty in Cameroon: A Structural Equation Modeling Approach'. *Social Indicators Research* 113 (1): 159–81. https://doi.org/10.1007/s11205-012-0087-8.

Obberwittler, D. 2005. 'Social Exclusion and Youth Crime in Europe- The Spatial Dimension'. Plenary Presentation presented at the Fifth Annual Conference of the European Society of Criminology, Helsinki, September 31.

———. 2007. 'The Effects of Neighbourhood Poverty on Adolescents Problem Behaviours: A Multi-Level Analysis Differenciated by Gender and Ethnicity'. *Housing Studies* 22 (5): 781–803.

O'Connor, A. 2016. 'Poverty Knowledge and the History of Poverty Research'. In *The Oxford Handbook of the Social Science of Poverty*, edited by D. Brady and L. M. Burton, 1 Edition. Oxford University Press.

Odgers, C. L. 2015. 'Income Inequality and the Developing Child: Is It All Relative?' *American Psychologist* 70 (8): 722–31. https://doi.org/10.1037/a0039836.

OECD. 2015a. 'OECD Economic Surveys Mexico'. Paris: OECD.

———. 2015b. 'PISA - Programme for International Student Assessment'. Paris: Organisation for Economic Cooperation and Development. http://www.oecd.org/pisa/.

———. 2015c. 'Programme for International Student Assessment (PISA)'. Country Note Mexico. Paris: OECD.

———. 2017a. 'Income Distribution and Poverty : By Country'. OECD.Stat. 2017. http://stats.oecd.org/index.aspx?queryid=66670.

———. 2017b. 'OECD Better Life Index'. 2017. http://www.oecdbetterlifeindex.org/#/11111111111.

OED. 2016a. 'Crime, N.' In *Oxford English Dictionary*. Oxford University Press. http://www.oed.com/view/Entry/44417.

———. 2016b. 'Culture, N.' In *OED Online*. Oxford University Press. http://www.oed.com/view/Entry/38619.

———. 2016c. ‘Eclectic, A.’ In *OED Online*. Oxford University Press. http://www.oed.com/view/Entry/38619.

———. 2016d. ‘Inequality, N.’ In *OED Online*. Oxford University Press. http://www.oed.com/view/Entry/94974.

OLD. 1982. ‘Pauper, Pauperis’. In *Oxford Latin Dictionary*.

Parcel, T. L., Mikaela J. Dufur, and Rena Cornell Zito. 2010. ‘Capital at Home and at School: A Review and Synthesis’. *Journal of Marriage and Family* 72 (4): 828–46. https://doi.org/10.1111/j.1741-3737.2010.00733.x.

Pigou, A. 1932. *The Economics of Welfare*. London: Macmillan and Co.

Piketty, T. 2014. *Capital in the Twenty- First Century*. Cambridge, Mass: The Belknap Press of Harvard University Press.

Portes, A. 2000. ‘The Two Meanings of Social Capital’. *Sociological Forum* 15 (1): 1–12.

Prendergast, L. A., and Robert G. Staudte. 2017. ‘A Simple and Effective Inequality Measure’. *The American Statistician*, August, 0–0. https://doi.org/10.1080/00031305.2017.1366366.

Pridemore, W. A. 2011. ‘Poverty Matters: A Reassessment of the Inequality-Homicide Relationship in Cross-National Studies’. *British Journal of Criminology* 51 (5): 739–72.

Prieto Garcia, M. P. 2005. ‘Violencia Escolar y Vida Cotidiana En La Escuela Secundaria’. *Revista Mexicana de Investigación Educativa* 10 (27): 1005–26.

Putnam, R. D. 1995. ‘Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America’. *PS: Political Science and Politics* 28 (4): 664. https://doi.org/10.2307/420517.

Randall, J., and H. J. Jung. 2018. ‘Confirmatory Factor Analysis’. In *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation*, by Bruce B. Frey. 2455 Teller

Road, Thousand Oaks, California 91320: SAGE Publications, Inc. https://doi.org/10.4135/9781506326139.n140.

Reed-Danahay, D. 2005. *Locating Bourdieu*. Bloomington: Indiana University Press. http://public.eblib.com/choice/publicfullrecord.aspx?p=255645.

Romano, E., L. Babchishin, R. Marquis, and S. Fr?chette. 2015. 'Childhood Maltreatment and Educational Outcomes'. *Trauma, Violence, & Abuse* 16 (4): 418–37. https://doi.org/10.1177/1524838014537908.

Sabates, R., L. Feinstein, and A. Shingal. 2011. 'Inequality in Academic Performance and Juvenile Convictions: An Area-Based Analysis'. *British Journal of Educational Studies* 59 (2): 143–58. https://doi.org/10.1080/00071005.2011.577407.

Salazar Estrada, J. G, T. M. Torres Lopez, C. Reynaldos Quinteros, N. S. Figueroa Villasenor, and A. Araiza Gonzalez. 2011. 'Factores Asociados a La Delincuencia En Adolescentes de Guadalajara, Jalisco'. *Papeles de Poblacion* 17 (68): 103–26.

Salkind, N. 2007. 'Encyclopedia of Measurement and Statistics'. In . 2455 Teller Road, Thousand Oaks California 91320 United States of America: Sage Publications, Inc. https://doi.org/10.4135/9781412952644.n57.

Sampson, R. J. 2006. 'Collective Efficacy Theory: Lessons Learned and Directions for Future Enquiry'. In *Taking Stock; The Status of Criminological Theory*, Advances in Criminological Theory:149–68. New Brunswick, New Jersey: Transaction Publishers.

———. 2009. 'Disparity and Diversity in the Contemporary City: Social (Dis)Order Revisited'. *British Journal of Sociology* 60: 1–31.

Sampson, R. J., J. D. Morenoff, and T. Gannon-Rowley. 2002. 'Assessing "Neighborhood Effects": Social Processes and New Directions in Research'. *Annual Review of Sociology* 28: 443–78.

Sampson, R. J., and J. Laub. 1991. 'The Sutherland–Glueck Debate on the Sociology of Criminological Knowledge'. *American Journal of Sociology* 96: 1402–40.

Sapouna, M. 2010. 'Collective Efficacy in the School Context: Does It Help Explain Victimization and Bullying among Greek Primary and Secondary School Students?' *Journal of Interpersonal Violence* 25 (10): 1912–27.

Saravi, G. A. 2015. 'Unequal Inclusion: Experiences and Meanings of School Segmentation in Mexico'. *International Journal of Educational Development* 45: 152–60.

SAT. 2018. 'Salarios Mínimos 2018'. Servicio de Administracion Tributaria: Informacion Fiscal. 2018. http://www.sat.gob.mx/informacion_fiscal/tablas_indicadores/Paginas/salarios_minimos.aspx.

Savelsberg, J., and R. Sampson. 2002. 'Introduction: Mutual Engagement: Criminology and Sociology?' *Crime, Law and Social Change* 37 (2): 99–105.

Schwartz, S. J., C. A. Mason, H. Pantin, Wei Wang, C. Hendricks Brown, A. E. Campo, and J. Szapocznik. 2009. 'Relationships of Social Context and Identity to Problem Behavior Among High-Risk Hispanic Adolescents'. *Youth & Society* 40 (4): 541–70. https://doi.org/10.1177/0044118X08327506.

Secretariado Ejecutivo. 2018. 'Incidencia Delictiva Del Fuero Común'. Incidencia Delictiva. 2018. http://secretariadoejecutivo.gob.mx/incidencia-delictiva/incidencia-delictiva-fuero-comun.php.

Sen, A.. 1995. *Inequality Reexamined*. Oxford University Press. https://doi.org/10.1093/0198289286.001.0001.

———. 2001a. *Development as Freedom*. Oxford ; New York: Oxford University Press.

———. 2001b. 'Economic Development and Capability Expansion in Historical Perspective'. *Pacific Economic Review* 6 (2): 179–91. https://doi.org/10.1111/1468-0106.00126.

SEP. 2013a. 'Encuesta Nacional Sobre Exclusion, Intolerancia y Violencia En Las Escuelas de Educacion Media Superior'. http://bdsocial.inmujeres.gob.mx/index.php/enece/17-acervo/acervo/265-encuesta-nacional-de-exclusion-intolerancia-y-violencia-en-escuelas-publicas-de-educacion-media-superior-eneivems-2009.

———. 2013b. 'Evaluación Nacional Del Logro Académico En Centros Escolares'. ENLACE. 2013. http://www.enlace.sep.gob.mx/ba/.

———. 2014. *PROGRAMA Nacional Para El Desarrollo y La Inclusión de Las Personas Con Discapacidad 2014-2018*.

SEP-INEGI. 2013. 'Censo Del Escuelas, Maestros y Alumnos de Educacion Basica y Especial'.

Shammas, V. L., and S. Sandberg. 2016. 'Habitus, Capital, and Conflict: Bringing Bourdieusian Field Theory to Criminology'. *Criminology and Criminal Justice* 16 (2): 195–213. https://doi.org/10.1177/1748895815603774.

Shorrocks, A. F. 1980. 'The Class of Additively Decomposable Inequality Measures'. *Econometrica* 48 (3): 613. https://doi.org/10.2307/1913126.

Short, J. F. 1998. 'The Level Of Explanation Problem Criminology 1997 Presidential Address'. *Criminology* 36 (1): 3–36.

Smith, A 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: Electric Book Co. http://public.eblib.com/choice/publicfullrecord.aspx?p=103512.

Stewart, E.A. 2003. 'School Social Bonds, School Climate, and School Misbehavior: A Multilevel Analysis'. *Justice Quarterly* 20 (3): 575–604. https://doi.org/10.1080/07418820300095621.

Stiglitz, J. E. 2013. *The Price of Inequality*. New York: W. W. Norton & Company.

Suhr, D. 2005. 'Principal Component Analysis vs. Exploratory Factor Analysis'. *SAS Users Group International Conference* SUGI 30: 203–30.

Thapa, A., J. Cohen, S. Guffey, and A. Higgins-D'Alessandro. 2013. 'A Review of School Climate Research'. *Review of Educational Research* 83 (3): 357–85. https://doi.org/10.3102/0034654313483907.

Theil, H. 1967. *Economics and Information Theory*. Vol. 7. Studies in Mathematical and Managerial Economics. Amsterdam: North-Holland.

Tomlinson, M., R. Walker, and G. Williams. 2008. 'Measuring Poverty in Britain as a Multi-Dimensional Concept, 1991 to 2003'. *Journal of Social Policy* 37 (04). https://doi.org/10.1017/S0047279408002237.

Tsui, K.-Y. 1995. 'Multidimensional Generalizations of the Relative and Absolute Inequality Indices: The Atkinson-Kolm-Sen Approach'. *Journal of Economic Theory* 67 (1): 251–65. https://doi.org/10.1006/jeth.1995.1073.

———. 1999. 'Multidimensional Inequality and Multidimensional Generalized Entropy Measures: An Axiomatic Derivation'. *Social Choice and Welfare* 16 (1): 145–57.

UN-Habitat. 2015. 'Reporte Nacional de Movilidad Urbana En México 2014-2015'. Mexico: United Nations Settlements Programe. http://www.onuhabitat.org/Reporte%20Nacional%20de%20Movilidad%20Urbana%20en%20Mexico%202014-2015%20-%20Final.pdf.

United Nations, ed. 1990. *Human Development Report 1990. Published for the United Nations (New York) Development Programme*. New York: Oxford Univ. Pr.

———. , ed. 2016. *Human Development Report 2016. Human Development for Everyone*. New York: United Nations Development Programme.

———. 2017. 'Country Profile | Mexico'. UNdata. 2017. http://data.un.org/CountryProfile.aspx?crName=Mexico.

Unnever, J. D., Mark Colvin, and Francis T. Cullen. 2004. 'Crime and Coercion: A Test of Core Theoretical Propositions'. *Journal of Research in Crime and Delinquency* 41 (3): 244–68. https://doi.org/10.1177/0022427803257251.

UNODC. 2013. ‘Global Study on Homicide 2013’. United Nations Office on Drugs and Crime.

Upson, A. 2006. ‘Perceptions and experience of anti-social behaviour: Findings from the 2004/05 British Crime Survey’. Home Office Online Report 21/06. London, United Kingdom.

Vandewater, E A., and Jennifer E. Lansford. 2005. ‘A Family Process Model of Problem Behaviors in Adolescents’. *Journal of Marriage and Family* 67 (1): 100–109. https://doi.org/10.1111/j.0022-2445.2005.00008.x.

Vartanian, T.P. 2010. *Secondary Data Analysis*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195388817.001.0001.

Vicente, G.-S., and J. A. Leyva Moreno. 2018. ‘LA PROBABILIDAD DEL CRIMEN Y SU RELACIÓN CON EL CRECIMIENTO ECONÓMICO EN MÉXICO: UN ANÁLISIS REGIONAL’. Universidad Nacional Autónoma de México y Asociación Mexicana de Ciencias para el Desarrollo Regional A.C.

Vilalta, C., and R. Muggah. 2016. ‘What Explains Criminal Violence in Mexico City? A Test of Two Theories of Crime’. *Stability: International Journal of Security & Development* 5 (1). https://doi.org/10.5334/sta.433.

Voth-Gaeddert, L.E., and D.B. Oerther. 2014. ‘Utilizing Structural Equation Modeling in the Development of a Standardized Intervention Assessment Tool’. *Procedia Engineering* 78: 218–23. https://doi.org/10.1016/j.proeng.2014.07.059.

Wacquant, L. 1998. ‘Negative Social Capital: State Breakdown and Social Destitution in America’s Urban Core’. *Journal of Housing and the Built Environment* 13 (1): 25–40.

———. 2014. ‘Putting Habitus in Its Place: Rejoinder to the Symposium’. *Body & Society* 20 (2): 118–39. https://doi.org/10.1177/1357034X14530845.

Walker, R. 2015. ‘Multidimensional Poverty’. *GSDRC Professional Development Reading Pack*, University of Birmingham., , no. 22.

Walker, R., M. Tomlinson, and G. Williams. 2012. 'The Problem with Poverty: Definition, Measurement and Interpretation'. In *The SAGE Handbook of Measurement*, edited by Geoffrey Walford, Eric Tucker, and Madhu Viswanathan, 353–76. London, United Kingdom: SAGE Publications Ltd. https://doi.org/10.4135/9781446268230.

Weatherburn, D., and B. Lind. 2001. *Delinquent-Prone Communities*. Cambridge: Cambridge University Press.

Wendelspiess Chávez Juárez, F.. 2015. 'Measuring Inequality of Opportunity with Latent Variables'. *Journal of Human Development and Capabilities* 16 (1): 106–21. https://doi.org/10.1080/19452829.2014.907247.

Werfhorst, H. G. van de, and S. Hofstede. 2007. 'Cultural Capital or Relative Risk Aversion? Two Mechanisms for Educational Inequality Compared'. *The British Journal of Sociology* 58 (3): 391–415. https://doi.org/10.1111/j.1468-4446.2007.00157.x.

Wheeldon, J. 2015. 'Ontology, Epistemology, and Irony: Richard Rorty and Re-Imagining Pragmatic Criminology'. *Theoretical Criminology* 19 (3): 396–415.

Wikstrom, P-O. H. 2006. 'Individuals, Settings, and Acts of Crime: Situational Mechanisms and the Explanation of Crime'. In *The Explanation of Crime*, 61–107. Cambridge: Cambridge University Press.

Wikstrom, P-O. H., and R. Loeber. 2000. 'Do Disadvantaged Neighbourhoods Cause Well-Adjusted Children to Become Adolescent Delinquents?: A Study of Male Serious Juvenile Offending, Individual Risk and Protective Factors, and Neighbourhood Context.' *Criminology* 38: 1109–42.

Wilkinson, R., and Kate Pickett. 2010. *The Spirit Level: Why Equality Is Better for Everyone*. London, New York: Penguin.

Williams, K. R., and Nancy. Guerra. 2011. 'Perceptions of Collective Efficacy and Bullying Perpetration in Schools'. *Social Problems* 58 (1): 126–43.

Wood, M. 2004. 'Perceptions and experience of antisocial behaviour: findings from the 2003/2004 British Crime Survey'. Home Office Online Report 49/04. London, United Kingdom.

Young, J. 2004. 'Voodoo Criminology and the Numbers Game'. In *Cultural Criminology Unleashed*, edited by J. Ferrel, K. Hayward, W. Morrison, and M. Presdee, 13–28. London: Glasshouse Press.

Zepeda Gil, R. 2018. 'Siete Tesis Explicativas Sobre El Aumento de La Violencia En México.' *Polit. Gob.* 2018 (25–1): 185–211.

Zurita Rivera, U. 2012. 'Las Escuelas Mexicanas y La Legislacion Sobre La Convivencia, La Seguridad y La Violencia Escolar'. *Educacion y Territorio* 2 (1): 19–36.